State Board Number

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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 20 Cents

VOLUME 84, No. 18 | **535 North Dearborn Street, CHICAGO, ILL.** | **MAY 2, 1925**

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 84, NO. 18 CHICAGO, ILLINOIS MAY 2, 1925

AN ADEQUATE EXAMINATION

ESSENTIALS FROM THE STANDPOINT OF THE FUNDAMENTAL MEDICAL SCIENCES *

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The president of a leading university has recently written that "examination is the most difficult of the educational arts and its influence on both students and teachers may be very great." It may be added that, in some quarters, this difficult art appears to have had very little constructive study.

The choice and phrasing of questions for an examination requires from the examiner not only broad knowledge of the subject in hand, but careful judgment of relative values and, also, a keen appreciation of the purpose of the examination. On the part of the student is demanded a correct attitude toward the examination, and an appreciation of the opportunity it affords him for analysis of his own powers. Too often the student feels he is doing something to please the examiner, and that the examination is in a sense a penalty. Instead, he should consider it as an inspection of progress, an opportunity to see in the questions a careful judgment of relative values by one thoroughly familiar with the subject itself as a whole and with the relation of that one subject to cognate subjects.

In the formal educational process, the examination should be considered by both the teacher and the student as an educational exercise, somewhat different in procedure but no different in purpose from other appointments between teacher and student.

The unannounced examination shows the student the present state of his knowledge, too often confused and unorganized, and makes available to him the criticism, both favorable and unfavorable, of his instructor. When announced, there is the added value that the very announcement is a stimulus to the student to review his subject and bring together in a logical and organized entirety what he has theretofore treated only piecemeal. Such a review, undertaken deliberately and with organization, is of great value in showing the student what he knows and what he does not know.

To the teacher, the examination is of much value in enabling him to judge of the adequacy of his teaching and of the accuracy of his judgment in setting the examination. It also enables the teacher to get some concrete and comparative estimate of the intellectual progress, capability and industry of his students. The announced examination or test is of less value to the teacher than is the unannounced, since the responses are likely to represent, so far as the questions elicit only a repetition of facts, a knowledge very recently acquired by the student and therefore transitory. This applies also in large measure to state board examinations, unless types of examinations are used that minimize the transitory result of relying on recent memorizing of facts to be speedily forgotten.

INSTITUTIONAL EXAMINATIONS

Confining ourselves to examinations connected with medical education, and therefore beginning not earlier than very late adolescence, one may outline the following types of examinations:

1. First, there is the examination for entrance to medical school, which may be termed the preliminary examination. Its purpose is to ascertain whether the applicant has received instruction and acquired information and training, in those subjects on which medical science is based, in sufficient quantity and with enough success to give a reasonable probability of success in the medical course.

In this country, formal entrance examinations are usually waived and in lieu of them we accept credits from standard colleges and universities; that is, we accept the judgments of former teachers. This plan gives a series of opinions at different times by different instructors concerning whom we usually know relatively little, rather than a comprehensive judgment rendered at one time by known examiners. We all recognize that former teachers frequently overrecommend their students rather than give frank opinions of their weaknesses as well as their strong points.

In spite of this and notwithstanding the great variability in the value of credits from different colleges, this system is better than one of entrance examinations, because these former teachers have been intimately associated with the student through several years of the period of most rapid mental development. This prolonged acquaintance gives an insight into the capability of the student, which, when frankly expressed, is far more likely to be accurate than any judgment that can result from written responses to a few questions in each of several subjects. An examination is merely one of a series of methods of judging the capability of an individual. Alone, it is inadequate as a basis for deliberate judgment.

2. During the medical course the examinations are usually of two types, to which, in a few schools, a third type has been added.

The first type of examination in the medical school is the short test, unannounced or announced, given in many subjects at intervals as the course progresses. Its object is to stimulate the student to keep up his work and to review it at short intervals. It also aims to ascertain whether the student has comprehended the

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 11, 1925.

instruction so far given in the course in one subject, and therefore whether he is prepared to receive the more advanced instruction in that subject. Incidentally, it is a test of the quality of the teaching when the results are correctly interpreted. Such examinations, being on a very limited field, should be as particular and detailed as is the instruction, and may well include questions demanding a minuteness of knowledge that could not be exacted in a comprehensive examination. This is justified in a test because the detailed knowledge has been very recently acquired and is to be immediately used in the course as a basis on which to build further conceptions of the subject. Such tests are of much value as a procedure in teaching. Unfortunately, the frequent test is little used in the teaching of courses in the clinical subjects in which its pedagogic value would be no less than in earlier years.

3. The second and almost universal type of examination in the medical school is the so-called final examination in a course. The use of the word final is unfortunate. It is to be deplored that the student usually looks on courses as entities, and seems to think that each is to be worked through, passed and put behind him. The concentration method of teaching in vogue in some schools is certainly contributory to such ideas. We should aim to make the student realize that no subject of the curriculum is an entity, but that each is an essential factor of an equated whole, and that acquisition of knowledge in any subject should continue parallel to, and in correlation with, other subjects.

The examination at the end of a course has a very different object in view than has the test. Its purpose is, first of all, to induce a thorough review, and secondly to ascertain whether the student has, through the method of acquiring increments of information, reached an understanding of the subject as a whole, and secured enough essential facts and comprehension of the subject so that he has a reasonably adequate basis on which may be built the instruction in the subjects to which this one is prerequisite. Of course, this is the salient feature of a graded curriculum.

Such an examination should be less detailed than the test type and more comprehensive. It should sort out the essentials from the nonessentials, and the questions should be on those phases of the subject which are directly correlated with the subjects that are to follow. Above all, the examination should attempt to ascertain whether the student can think in terms of the subject in question. To set an examination in any subject, except one of the test type, which requires only memory and can be answered by an accurate, parrot-like repetition of textbook statements or the words of wisdom or pet phrases of the instructor is entirely inadequate. A phonograph can repeat accurately.

The procedure in such examinations varies. The written type of examination, the oral type, the so-called practical or objective type and the thesis type each has its value, but also each has its dangers. No one is all good or all bad; but, whatever the type or types, the carefully selected examination at the end of a course is, to the student, the most valuable educational exercise in the course. To excuse from final examination a student who has reached a certain excellence is a mistake. It not only tacitly encourages the mistaken idea that the examination is a penalty, but it takes from the student something of great value to him, since not only the review induced by a coming examination but also the very taking of it gives to the student a clearer idea of his strength and of his deficiencies than he can otherwise get.

4. A third type of examination in the medical school is the intermediate examination, a comprehensive examination about midway of progress through the entire curriculum, and based largely on the content of the fundamental medical sciences. Its object is to determine the fitness of the student to enter on the instruction of the latter half of the curriculum.

It is not much used in this country, though largely used in other countries. In recent years, one or two medical schools in this country have introduced it. A tendency toward it is shown in the provision in certain states for dividing the state board examinations into two parts, one at the end of the first two years and another after graduation. I imagine that the thought in these statutory provisions has been to ease the burden on the student; but, if so, there has been provided unwittingly a most excellent educational procedure, if it were made compulsory instead of merely permissible.

The intermediate examination has great value especially in two ways: First, it requires the applicant to review all his fundamental medical sciences immediately before he enters on the clinical phase of instruction. In so doing he, in a measure, must correlate them one with another, and also, to some small extent, such a procedure will diminish the idea that when a student passes the examination at the end of a course in a subject he is through with that subject. Secondly, the intermediate examination will deny the privilege of the clinical instruction to a student until he has comprehended and correlated all the subjects of the fundamental medical sciences as a whole, rather than, under the present usual method, having worked them off piecemeal and secured credits on them. Such denial would obviate many failures adequately to comprehend the instruction of the clinical years. Of course, a state board exmaination of the intermediate type, given at the end of the second year, would be quite different from the type of state board examination in these subjects which I shall suggest when it is delayed until after graduation.

5. Yet another type of examination must be mentioned. This has been, until very recently, practically obsolete, but shows, in a few places, signs of revival. It is the comprehensive examination in all subjects of the curriculum at the end of the formal course of medical instruction. In medical education in this country it was the usual thing until somewhat less than fifty years ago. It was often given orally, and in it participated not only faculty but also quasiofficial censors, who were usually experienced practitioners and frequently leading alumni. The object was to determine the fitness of the candidate for the degree, which, since usually the degree carried the right to practice, was also incidentally an inquiry into his fitness to practice. In a measure it took the place of the present state board examination, though less formal and far less exhaustive. It rapidly disappeared, coincident with the inauguration of licensing examinations by the state. This type of examination is still pursued in other countries, and in this country is almost universal for candidates for higher degrees in arts and science; that is, for the doctorates in philosophy and science.

I have taken perhaps an unwarranted part of my time in outlining some of the different types of examinations: preliminary, tests within the course, final at the end of a course, intermediate, and final for the

degree. I have done so because I believe that it is necessary to call definite attention to the fact that no two of these are alike in purpose, and therefore, of necessity, no two of them should be identical in content and procedure.

COMPARISON OF INSTITUTIONAL AND LICENSING EXAMINATIONS

The next point I wish to make, and to me a fundamental point in this discussion, is that the examination for license to practice is, in its turn, entirely different from any of those now in use in the institutional training of the student. Its object is quite different; therefore, logically its scope and procedure should be quite different from any of the institutional examinations. It follows that it is illogical to use any of these familiar examinations as a pattern.

From a perusal of many examination questions given by state boards and collected for the use of applicants, it appears to me that the average state board examiner has failed to comprehend the difference in both object and content between the examination for license and the examination within the medical school. The questions appear to have been culled largely by the examiner from those which he was called on to answer when he was a student.

The licensing examination does not aim to determine whether an applicant has comprehended the earlier parts of a course, in preparation for the later parts; hence, the type of questions asked in a test is out of place. Such questions as, "Give the formula for hemoglobin," or "Describe a striate muscle fiber," while perfectly proper in a test, seem too absurd to ask of an applicant for a license, and yet I find questions of this type recurring again and again.

The licensing examination does not aim to ascertain whether an applicant knows enough of one subject to proceed to instruction in another; for example, enough chemistry and histology so that he can probably profit by the course in physiology. Therefore, the type of examination given at the end of a course in a subject in the medical school, such as chemistry or histology, is entirely out of place in an examination for license. Hence, questions such as, "Diagram the benzene ring," or "Classify the epithelia," seem entirely futile in the licensing examination.

The final licensing examination does not aim to determine whether the applicant knows enough of the fundamental sciences to profit by instruction in the clinical subjects. It is too late to ask that question, for he has already taken the clinical subjects, and so the type of the intermediate examination is out of place in examining for immediate licensure.

THE PURPOSES OF THE LICENSING EXAMINATIONS

To proceed to an analysis of what type of examination in the fundamental medical sciences should be given to the applicant for immediate license, we must first inquire as to what is the purpose of the licensing examination, and then proceed to an attempt to devise a type of examination that logically responds to this purpose.

In its conception, the inauguration of civil licensing boards of any kind has two main objects: The first is one of registration, so that there may be official record of who is or is not engaged in a given occupation, whether it be running a steam boiler or practicing a profession; but this object is really secondary to that of the determination of the competence of the individual to do the thing for which he asks to be licensed.

The primary function of the medical licensing board is to ascertain whether an applicant is competent to practice general medicine. It is not concerned with whether he is competent in a restricted and special field, be that field ophthalmology or brain surgery, on the one hand, or physiology, bacteriology or embryology, on the other. The licensing board is concerned with whether it is safe to permit the applicant to practice general medicine—and no more.

It reaches its conclusions on evidence from two sources: First by ascertaining something of the personal history of the candidate as to maturity and character, and especially as to the educational opportunities he has enjoyed, and how far he has availed himself of these opportunities. For the latter, it relies chiefly on the repute of the institution that has given him his degree, for the officers of that institution can logically be expected to know far more about the personality and capability of one of its graduates than it is possible to ascertain by any set of examinations given within the space of a week. Since this is really the larger factor influencing the granting of a license, each state board should constantly revise its information as to the quality of the medical schools from which it receives its candidates, and especially concerning those schools that send it any considerable number of candidates, and certainly concerning the schools within its own state. Since every school has its weak points, the board should know the weaknesses of such schools, in order that the examination may, in such weak places, be more searching. The licensing examination should be considered as supplementary to the medical course, but not as the primary basis for licensure.

PROCEDURE IN LICENSING EXAMINATIONS

The determination of the fitness and safety of a candidate to practice general medicine and surgery cannot logically be established simply on the basis of his information. Correct response to a series of inquiries regarding facts is not enough. It is much more important to determine whether he can use these facts.

Obviously, an applicant cannot be asked questions concerning all the facts he should know, nor is it possible for him at any one time to know all the facts he will need. It should therefore be ascertained whether the candidate knows how to get the facts he does not know but needs; that is, does he have a clear idea of the method of getting knowledge from sources other than his own memory and is he familiar with these sources? It is suggested that the following question asked of a candidate would give more light on whether or not he is safe to practice medicine than do many of the kind of questions usually given, since any man who depends alone on his memory of what he has at some time known, is unsafe:

> Assuming you are to locate in a town of 3,000 people at least 100 miles from any large city, what medical books would you consider it necessary to have in your office when you begin to practice? Give authors, titles and approximate date of publication.

One might add to this a question concerning what medical journals he would consider it necessary to receive regularly. This would give some indication as to whether a candidate is likely, in some measure, to keep abreast of the progress of medicine.

Another element of safety in a physician is judgment. No man is so wise as he who knows what he knows and also recognizes that there are certain things he does not know and cannot do. A question as to what the candidate would do in some condition (that is not an emergency) demanding a high degree of skill, such as a brain tumor, and which should not be attempted by the general practitioner, would bring out whether a man knows enough not to attempt the things beyond his ability.

Another essential in a safe practitioner is resourcefulness. Questions as to what he would do in a certain described emergency would test this quality.

PROCEDURE IN LICENSING EXAMINATIONS IN THE FUNDAMENTAL MEDICAL SCIENCES

The licensing board should test a man's knowledge, so far as it applies to his competence for the general practice of medicine, but this does not include minutiae in the fundamental medical sciences.

These subjects have a dual status in the medical curriculum. They are first of all sciences just as much as astronomy or geology are sciences. As such, their study has cultural value and also, if rightly taught, serve as a medium of training the student to observe, to make correct deductions, to reason both analytically from the general to the particular and synthetically from the particular to the general. All these qualities are sorely needed in the safe practitioner; hence, the study of the subjects as sciences in the medical school is amply justified by the training they give, quite aside from the information derived from them.

Also, these sciences furnish a body of facts and relations on which are based the several clinical subjects. The fundamental medical sciences are, in large part, applied chemistry, physics and biology. In turn, clinical medicine in its broad sense is the application of some parts of these sciences, but not of all parts that are taught in each, any more than any of the fundamental medical sciences applies all of chemistry or of physics or of biology.

The licensing examination should recognize this dual rôle of the fundamental sciences in the medical curriculum and confine itself to those phases of these fundamental sciences that are applied in those parts of clinical medicine which the general practitioner is likely to be called on to use. Moreover, the licensing examination should consider these phases only in correlation with their clinical application. Questions on particular facts in these fundamental sciences should give way to questions so phrased as to demand the application of these facts rather than the mere statement of the facts. If one were examining a candidate for a job to compute interest in a bank, one would not ask him to write out the multiplication table, but would give him problems in interest in which he would have to use parts of the multiplication table. Likewise, in a fundamental science such as anatomy, questions should be asked which involve knowledge of these facts in an applied relation and show the ability of the candidate to apply them. Such questions test not only his knowledge, but as well his ability to apply this knowledge, his ability to think anatomically and his power of reasoning. Let me illustrate by the following two questions, each demanding exactly the same knowledge of facts:

A. By what nerve is the radial border of the arm innervated, and from what spinal nerves does its fiber arise?

B. A patient came into a physician's office, and it was found that he had complete anesthesia along the left radial border. He stated that a few months before he had been stabbed from behind and since then had had this numbness. Where was he stabbed and what structures were severed?

A is merely a test of memory of the fact that the fibers of the radial nerve arise from the fifth, sixth and seventh spinal nerves. B tests not only memory but likewise the ability to correlate, to reason and to apply knowledge to such problems as arise in practice. A correct answer to a question requiring only memory may result from cramming with a quiz compend or by a quiz master, and this is likely to be entirely transitory. The answer to the other type of question gives evidence not only of memory but also of mental and intellectual qualities which cannot be acquired in a few days' cramming. These qualities in the physician are indispensable if he is to be safely entrusted with the health and happiness of his constituency.

There is not time here to outline in any detail the type of examination in each of the fundamental subjects, but one may suggest that a basis for judgment of the knowledge of chemistry may be secured with problem questions dealing with the chemical processes in digestion and other phases of metabolism, with the chemical action of antidotes toward poisons, or the chemical incompatibility of one drug with another, as well as by asking questions on molecular theory, method of preparation of chemical compounds, or formulas for chemical reactions.

In anatomy, both gross and microscopic, questions dealing with application to clinical problems are fully as good a test of adequacy of knowledge as are questions asking one to name the insertions of a muscle or list the branches of the brachial plexus.

In embryology, questions pertinent to anomalies or to obstetrics are just as good a criterion as those on gastrulation or germ layers.

In physiology, certainly questions on the normal activity of the major functions of digestion, circulation, respiration or secretion give a basis for judgment of competence far superior to questions on muscle curves or nerve impulse or how to set up a kymograph.

A knowledge of bacteriology may be tested by questions involving asepsis, sanitation and public health just as well as on the peculiar cultural characteristics of a given organism.

In pathology, the examination should aim to ascertain whether the applicant can think in terms of pathology on problems of clinical medicine. On pathology, both morphologic and physiologic, must rest the understanding of disease and its treatment, and the applicant may well be expected to understand the structural and functional abnormalities on which rests any of the major group of diseases which he, as a general practitioner, may be called on to treat. He may well be called on in practical examination to identify and explain the relation of such gross pathologic conditions as he is likely to meet in practice. He should know and be able to identify pathologic conditions of blood; but to ask him to identify sections of organs containing obscure or detailed histopathologic conditions seems hardly within the demands to be expected of the general practitioner, for the general practitioner rarely has the equipment or knows how to prepare sections.

Pathology, in a general way, is the basis of clinical medicine; but it is not the province of the licensing examination to determine in regard to the more remote details. The pathologist is a specialist, and the qualifications for this specialty are not included among the qualifications for the general practice of medicine.

Necropsy technic is not in the province of the general practitioner. The performance of necropsies by the general practitioner not skilled and experienced in such procedure is likely to lead to failure in the purpose of the necropsy, to result in false conclusions, and to invite antagonism on the part of the lay public. Gross diagnosis of tumors from operation lies in the province of the specialist in surgery and should not be attempted by the general practitioner. The licensing board must clearly distinguish the limit between the knowledge of pathology to be demanded of the general practitioner and that which should be left to the specialist in pathology.

In teaching the fundamental medical sciences we must teach many details of information as a means to an end. These details constitute the scaffolding on which we build our arch of general and broad conceptions of the subjects and as bridges from which we pass from one high point to another. When these broader conceptions have been secured, the purpose of the details has been largely fulfilled; but it does not follow that they were not originally necessary to the process. We teach theories along with the facts in order that we may bind together into a coherent whole the facts, and connect these facts, both major and minor, as factors leading to the general conceptions, in order to give an understanding as well as knowledge of the subjects. Each of these fundamental subjects is a science, and as such has both academic and applied phases. Not all of each science is directly applicable to clinical medicine, but the applied phases are not consecutive; hence we must teach more than can be applied, in order to avoid the disjointed conception and lack of understanding that would result if we selected for teaching only those things directly applicable to clinical medicine.

For the purpose of judging the fitness of a candidate to enter the general practice of medicine, the examiners need concern themselves only with those parts that are applicable to clinical medicine, and may well disregard the details, which in teaching had to be used to reach an understanding of the essentials.

My plea is that, first of all, questions in the fundamental medical sciences be selected on the basis of their applicability to clinical medicine, and next that the questions be so couched that the correlation of the abstract knowledge with its application is thoroughly tested; that is, one should ask problem questions.

The licensing examination should test not only the knowledge of the candidate but also his mental and intellectual powers. The fundamental subjects may well be used for this purpose, and it is to be hoped that questions that require only memory to gain a correct answer will be replaced by questions of a problem nature that require not only memory but also correlation and ability for logical and correct reasoning.

It would be unwise immediately to go entirely to the type of question I have suggested. To do so would cause the majority of candidates to fail, for the memory type of question has been for so long a time so nearly universal that few men are prepared for the problem type; but a beginning may well be made at once and gradually more and more of the better type of question given until in a decade we can secure quite a different type of examination from that now prevalent. At first, guide posts will have to be erected in the question to suggest the line of reasoning. This may be done by subheadings of the question which will guide the responses in the proper channel.

Some may say that such questions are not fair. My experience with students is that when a question is said to be fair or not fair, the real meaning is that it is easy or not easy. When we use this phrase we should have in mind not only fairness to the student but also fully as much fairness to the profession and the public. The state board is not the advocate of the applicant for license. Its real duty is to be an advocate of the public of which it is the servant. A snap examination is not fair to the public, and in giving such an examiner violates his public duty.

RELATION OF LICENSING EXAMINATIONS TO MEDICAL EDUCATION

A change in the type of examinations which I hope may be inaugurated in the immediate future has a bearing quite apart from the guarding of the public interest through securing licentiates who give evidence of mental power as well as of memory, who know how to secure information which they do not possess, and who offer a probability of progress as they grow older.

The medical curriculum of the present day is unsatisfactory. It is overloaded with scheduled appointments between teacher and student. There is little time or energy left to the student for reflection or constructive thinking, or for training his reasoning powers. Medical instruction now is encyclopedic. It is chiefly concerned with giving information, and for the student the chief accomplishment is one of memory.

I believe that in the subject of this symposium lies one of the chief causes of the present unsatisfactory conditions in medical education. Each medical school must of necessity so teach that its graduates may be able to pass the state board examinations and gain a license to practice. Therefore the character of its teaching is much influenced by the quality and type of the average state board examination. These examinations make an emphatic demand for memory of facts and often minutiae and a minimum demand for any mental and intellectual powers other than memory. Our medical school teaching is too largely informational and too little in training to think, to make correct deductions and to solve problems. We all know that the curriculum is overloaded, but the excess load is largely due to the attempt to give information on details of the ever increasing mass of medical knowledge. I believe that the needed reform in the medical curriculum and in medical teaching cannot come from the bottom; that is, from the teachers themselves. The reform must start at the top, which, from the curricular point of view, is the specific demands made of the graduates before they may enter the profession or concretely the examinations to enter practice.

If the state boards will inaugurate a new type of examination demanding less of unassociated information and more of power to use what information the graduate has and knowledge of how to secure additional information, there will be an early response in the type of teaching in the medical schools. If the boards will put a premium on mental power other than mere memory, the teachers will be glad to train men in ways that will develop those powers.

If the boards will take the lead in this matter, we can within a decade deliver to the people a type of physician that may not have memorized as many facts, but will know how to get the facts he needs and how to use them rationally and safely in practice. And, too, we shall be able to reform our medical curriculum and teaching to bring about a more rational development

of the students under our charge, to make the years in medical school less of a drudgery and more of a progressive and enjoyable development.

It is my hope that this symposium will stimulate discussion within each board as to what can be done from their standpoint more nearly to accomplish the primary purpose we all have in view; namely, better service to humanity through rational medical education as a preparation for efficient medical practice.

AN ADEQUATE EXAMINATION AT THE END OF THE CLINICAL COURSES *

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It is obvious that the character of an examination should be determined by the purpose that that particular examination serves. An examination that is quite suitable under some circumstances may be unsuitable or inadequate under other circumstances; and, a point that is sometimes overlooked, if inadequate or unsuitable it may even do harm not only directly but also indirectly, for the character of the examination that he knows he will meet has perhaps more influence than any other factor in determining not only the amount of work that the student will do but also his attitude of mind toward the subject and his method of studying it.

When it is desired to determine simply how much detailed information each student has in one particular subject, the examination would of course be different from what would be needed if we wished to determine whether he could coordinate this information with that gained in the study of other subjects. The difference would be still greater if the object were to determine not only whether he could coordinate information but also whether he could employ it intelligently in elucidating problems.

In any professional training, the latter is the aim in view ultimately, and especially when the training is finished or about finished and the object has become to determine whether the candidate is fitly prepared to be sent out into his profession. This is even more true in medicine than in some other conspicuous forms of professional training. In the medical training, the knowledge demanded in the various courses will be in part never obviously employed in practice, and the evident purpose of that part of the training is to provide a fundamental understanding of the later more directly practical matters. But though this is a highly important purpose, it is by no means the only purpose in any subject, even in any of the medical sciences. Much of the knowledge from each separate course must be habitually woven together and actively employed to meet effectively the problems that come up in practice.

When the clinical courses are at an end, we must then have in mind not merely whether adequate information in each subject has been acquired but whether there is fitness to use this information on the problems of practice.

It is proper, as each individual course is completed, to use such a method as is thought best by those who teach that subject to determine whether the desirable amount of information and of method in this subject has been acquired and can be effectively employed. The purpose here and the manner of examination needed do not differ widely in the clinical subjects from what is suitable in the medical sciences. It is quite clear that in the clinical branches some part of the examination should be on the living patient; but this point does not show a difference in principle from the medical sciences. It is the same principle that makes his proficiency in actual laboratory observations a part of the test of the student in his courses in the medical sciences. Precisely how these individual course examinations shall be carried out is, I think, not of the first importance; nor is it a thing regarding which very definite advice could wisely be attempted. Intelligent teachers of the same subject will differ considerably in their method of examination and yet may be equally successful. Undoubtedly, however, the less they depend on the mere memorizing of facts, the more effective they are likely to be. Undoubtedly also, in my mind, too many "tests" and partial examinations are frequently used in many places in this country. On this I take apparently quite a different stand from Dr. Waite. Unless they are very carefully used, they tend to hold the indifferent student to his work but at the expense of taking away from all students one of the important elements in their training; that is, a training in initiative and independent effort. It were better, I think, to let the poor student run more risk in order to give all the students more responsibility by expecting them to determine largely for themselves how well they are keeping up with their work and how much danger they are in, a point that is, I think, better recognized in most European countries than it is in this country.

If the individual subject alone is conspicuously in mind, the examination will be in its essential principles much the same as those commonly and often properly used in primary and secondary schools and in many courses in college. In point of fact, this is what is done and, more important, it is all that is done in most instances in professional courses. We have dwelt a good deal from time to time on the tendency of students to depend too much on memory, and have bewailed their lack of adequate initiative and independence in thought and action. There is a connotation in our comment that seems often to indicate that average intelligence in students has declined since the time of our own youth, or that students are more refractory to wise guidance. It is just possible that the fault is not with the students. Among the important ways in which things provided for them may be at fault are the standards set for them; that is, the kinds of tests used in determining their qualifications.

There is a side of this matter that appears to me to be more important than that relating to the individual course examinations and one that has had much less general attention given to it; one, therefore, that more seriously needs discussion.

Since, then, it appears to me that details only and not principles differ in the examinations suitable for the various individual courses, whether they be in the medical sciences or the clinical branches, I had best leave these things undiscussed and address myself to the other more general matter.

PURPOSE OF THE EXAMINATION

The purpose at the end of the clinical years is to see whether the student is adequately trained to go out into practice. This is in almost every essential way the same purpose as that of the official examining boards, the only really important difference being that

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 11, 1925.

the official examining boards represent the interest of the public at large, whereas the faculty of any school represents both the interests of the general public and the prestige of that particular school. It is this point, I think, that makes it advantageous to have the schools as well as the examining boards examine critically as to the suitability for practice. There is a distinct advantage in this as against the methods in certain countries where some schools allow a man to take only an official examination for a license to practice and the school will accept that if the man does not wish to make a higher effort. That tends very strongly to bring the better schools down to the level of the minimum, for the level of the minimum is what the official examining boards must and properly do use as their criterion.

The purpose in the final examination is to determine whether the candidate is prepared to use as a capable clinician should use what he has gained from any and all sources; not to determine simply how much of this he can remember, but how well it serves him in comprehending and elucidating problems. The most usual methods of examining in schools, in colleges, in professional courses and in licensing boards tend very strongly to make more separate and distinct things of each subject rather than to coordinate them. This is neither unnatural nor harmful when the subjects are quite distinct things and have only occasional and casual relations, as is true in many subjects taken in secondary schools and colleges. When, however, a group of subjects have not only individual disciplinary or cultural purposes but also intimate and manifold interrelations, the examinations need, toward the end and certainly at the end, to take account of this. When the course is a professional one, all the subjects in it are not simply interrelated; they are in no true sense distinct subjects at all but are parts of a whole, and the whole is defective unless they are well coordinated in the mind of the student at the end.

It is a comparatively easy thing to lead the student to acquire a mass of details and to determine by examination that he has done so. It is a distinctly more difficult thing to lead him to coordinate a series of subjects that are separately taught and to employ them coordinately in comprehending and elucidating problems in which they all play a part; and it is a much more difficult thing to determine how satisfactorily he has done this than to learn whether he has acquired the details of each individual subject.

CORRELATION OF COURSES

Difficult as it is to accomplish this, it is just this that the satisfactory practitioner necessarily should be trained to do. The usual methods of examining unconsciously but nevertheless definitely tend actually to some extent to lead him away from developing this capacity, and hence they tend to have a harmful element in them unless this is balanced by something else. Some students with penetrating minds see interrelations spontaneously. More do not unless pressure is brought on them that leads them to do so. Under ordinary conditions of teaching and examination, each of the medical sciences consists to most students, I think, simply of more or less interesting material which appears to them to be intended partly as necessary discipline and partly as a necessary basis for comprehending further subjects. Only in occasional details is it actually obvious to the elementary student that these subjects are by no means solely a fundamental discipline, but also can be serviceably and continuously employed in practice. Each, when passed, is put aside as something which is over, and is reviewed only when it becomes necessary to take an examination for license. They are then reviewed in the same spirit as before; that is, details are rememorized. Even then, when the course is already finished, there is little effort toward coordination, largely because the examinations for license are usually of the same general character as those in the courses—an inquiry as to the knowledge of the details of each subject.

With the several clinical subjects there is, to be sure, the difference that they have very evident practical significance. They too, however, are largely looked at by the student, and often by the teacher, as individual and separate subjects that only occasionally overlap in what are often called borderland cases. In point of fact, the borderland covers almost the whole territory. I have repeatedly seen a look of surprise on the faces of practitioners as well as of students when they heard for the first time the wholly truthful aphorism of Dr. Cushing that medicine and surgery are the same subjects differing only in their therapeutics. I am often reminded of a story current in Harvard College of a student who learned in a course on government of a conspicuous stateman named Hamilton, in a course on economics of a man named Hamilton who was an able financier, and in a course on history of a man named Hamilton who was killed in a duel with Aaron Burr; and the student was quite astonished but wholly pleased to learn that these were all one and the same person.

It is almost inevitable that erroneous emphasis should be given in individual courses and that all are made to seem to a large degree separate courses. All these courses (and in this statement I include the clinical subjects) are usually taught by men whose activities and interests lie almost exclusively in their own particular field, and they have often lain in that particular field so long that frequently the teachers have lost many of the contacts with other fields. The emphasis on the interrelations during the course is only slight and occasional, and the examination takes account only of the subject directly at hand, as a rule.

The separation of the various subjects, even of the clinical subjects, has become much more marked in recent decades. The chief reasons seem to be, first, that the enormous accumulation of knowledge in many subjects has brought great pressure on the time available, through the effort to present all the important details, and has thus tended to restrict more general considerations; second, this accumulation of knowledge has been so great that it has forced into much greater specialization those who teach, and has lessened in some ways the capacity on the part of the teachers to deal with the relations to subjects other than their own. Even the clinical teachers have less familiarity with the relations of their own subjects to other subjects than used to be true.

The obvious and often suggested way of meeting this situation is to have men of more general training in charge of the departments. Such a plan is, however, doomed to failure. It is like saying that we had best give up the telephone, the automobile and the railroad because they add to the complexities and complications of life. However effective or ineffective the conditions were a generation or more ago, it is quite clear that with the present and probable future conditions of knowledge, versatility of the old type will but rarely escape being superficiality. Authoritative knowledge

and eager promotion of progress in his subject are qualities of first importance in the teacher, but these qualities now require a devotion of time and effort that is possible only when one specializes to a large degree.

Other ways of accomplishing coordination or correlation have been discussed and tried. Conscious and more or less organized efforts are being made in many places now in diverse ways. Sometimes, during the earlier work, special courses are introduced which, essentially speaking, simply arouse the imagination of the student and gain his interest in the prospective application of the immediate work to the future clinical courses. In certain instances these special courses correlate definitely and to a considerable degree the details of certain of the individual courses with one another. Sometimes they are planned to make a general bridge between the medical sciences and the clinical subjects. The most elaborate proposal, and one that is even being tried, is to coordinate in a pretty complex way in the actual schedule several of the most important clinical and preclinical branches, not giving these subjects in separate courses and in their usual sequence, but coincidently and in relation to particular diseases or particular organs or systems of organs.

Certain good results can be obtained by some of these efforts, though I have some doubt whether this can be said of the last mentioned method. They all, however, have decided limitations and some drawbacks. If they are slight in extent they are suggestive and thereby do some good. When slight, however, they accomplish but little as against the influence of the remaining large mass of the usual courses given in the usual way. The more extensive they become, the more they tend to burden the course and make confusion worse confounded in the overburdened mind of the student. Likewise, the more extensive they are, the more they tend actually to defeat their own object; that is, they then do for the student what he should be trained to do for himself. They provide in such cases, in addition to the all too common forms of spoon feeding, a new form, spoon-fed correlation. Occasional illustrations that point the way are useful, but the student must have the discipline of going on by his own efforts and not have the whole trail shown him.

FORM OF THE EXAMINATION

Whatever may be said in praise or condemnation of any system of examination, it is undeniable that, aside from the personal influence of exceptional teachers, the character of the examination that he knows is in prospect is, as I have previously indicated, the most potent factor in determining the manner in which a student attacks a subject. It is the most definite and forcible source of pressure that is put on him. The customary form of examination brings the pressure on the accumulation of facts and on the intensive study of each subject, but study of it separate and detached from the other subjects. Accumulation of facts and knowledge of the methods used in the work are essential. These are no less essential in the clinical subjects than in the medical sciences. It is desirable that as individual courses are completed it be determined, as is customarily done, whether the student has acquired a suitable knowledge of facts and methods; but these facts and methods are only the building stones which must be shaped and fitted together to form a structure of which not the parts but the whole provides fitness to practice.

When they are of the usual character alone, the strong influence of examinations tends to be against coordination, not for it. Pressure must be brought in the other direction to offset this, and the pressure must at the end be the dominant one. It must be so conspicuous even in the distance that its influence is exerted on the student long before he reaches the end of the course, and when he does reach that point this influence should have left a profound impression and have habituated him to a broader method of thought and given him training in employing that method himself.

There is, I think, no known way in which this can be accomplished in a wholly satisfactory manner or with all students, but there is a method by which a very appreciable amount of the desired result can be reached, a method that has in principle long been used in examining for higher academic degrees and has also been increasingly employed in some colleges for a considerable time in undergraduate courses in arts and science. Furthermore, in the school with which I am connected we have used this general method in medicine for more than ten years and in a definitely stabilized form for the last five years. I am not, therefore, speaking on grounds of theory and speculation but on those of experience as well. Trial has now eliminated some difficulties, and emphasized and brought into relief some good features that were not apparent at first.

I mean a general examination at the end of the course, a general examination differing from the old form of general examination that Dr. Waite referred to that was used years ago. That was a *viva voce* examination on the various subjects, but again largely one on detail. I mean an examination in which questions are set that demand the employment of any knowledge either directly scientific or more practical, in any subject of the course, so long as that knowledge bears on the comprehension and elucidation of the particular problem at hand, the problems set being of a clinical character. The method demands a weaving together and statement of this knowledge toward a demonstration of the proper understanding of the case at hand and of its diagnosis and treatment.

I shall for greater clarity state briefly the manner in which we have conducted this examination. The point I wish to make, however, is not a laudation of our own method of carrying this out, but on the contrary the point that a general idea developed in general educational experience is adaptable and effective in medicine, and in its central idea is peculiarly suited to a professional course in accomplishing the purpose that I am especially discussing; and I would emphasize the fact that it has been for some time applied to medicine, longer, I think, than to any other defined form of professional study, and that it has been entirely encouraging in its influence.

I have made or aided in making various other experiments with the purpose of coordinating knowledge. I have watched others in their trials of still other methods. I was not responsible for the inception of the use of this method at the Medical School of Harvard University, and a large body of teachers have shared in the effort devoted to its development. It appears to me, nevertheless, to be decidedly superior to any other method I myself have tried or seen tried, and much more than the others to have in it the kernel of the real object; namely, to lead the student himself in the regular course naturally to look continuously

toward this general goal rather than simply to arouse interest in this spasmodically in ways that are somewhat exotically laid on to the general course.

The general examination, students clearly understand, is necessary in order to graduate. It ought, however, to be still more clear that it is not intended to add further burdens or to trip the men. Only the stray man who has escaped deserved elimination up to that stage or the unusual one who lacks capacity of this sort to such a degree that he is not equipped as yet to be free to practice will fail in this examination, provided he has been looking forward to it and preparing his mind and methods of study for this manner of attack.

Briefly, I may say that the character of the examination is essentially this: All students are given a written general examination at the end of the fourth year, in order to see how well and in how orderly a way they can coordinate information from various sources toward solving a definite clinical problem. They are given a long time to answer these questions, a half day on one question, from 9 o'clock until 2. We should be willing to let the men have access to the library in answering these questions just as a physician consults his library. The questions are of such a character that in only slight ways could he thus aid himself in covering up actual ignorance. He must have done his work well beforehand in order to answer effectively. Mere reviewing is not sufficient to meet the situation. This has not been done, however, because it is, practically, difficult to carry out.

They are, then, given these questions for the purpose of seeing how orderly a mind they have, how well they can present the information they have and analyze the problem and reach a conclusion on the basis of their information. We should like to conduct also an oral examination on patients with all students, but difficulties of carrying this out have been in the way as yet. All men, however, that are candidates for honors are given oral examinations on patients they have studied, as well as men in danger of failing, and any student may be called for such an examination. The reason we always give them to the groups of students mentioned is, obviously, to reach greater fairness in determining honors and failures.

Let me emphasize that this examination is a difficult one to carry out. It is, in fact, the most difficult form of examination that I have ever dealt with. It requires a great deal of care and thought in setting the questions, and it requires a great deal of thought in carrying out the examination and in interpreting the results. We have teams of three to read each book, those three representing clinical branches and some one or other of the medical sciences. If there is any doubt regarding any book in the minds of the team, they turn it over to another team, who also read it to give a fair decision on the man. There rarely is doubt, and the several examiners usually come to the same conclusion.

Trained examiners are needed in the work. Examination is one of the most difficult things, as both the authors preceding me have pointed out, that we have to do in education if we are to do it intelligently. We have had a large body of men, over twenty, on the so-called examination committee, and we have as largely as possible kept the same men on the committee, occasionally adding a new man in order to keep new blood coming into it. Most of them, therefore, have had some years of training, and their skill is constantly increasing.

Let me indicate, by reproducing some of the actual questions used, what kind of questions are set:

A patient assumes a constant flexed position of the hip. Discuss mechanics, anatomy, physiology and pathology of conditions causing this.

Give your conception of the theory of the use of vaccines, and discuss their practical employment at the present day.

Discuss jaundice.

Discuss milk and its relation to disease.

A patient cannot dorsally flex his foot. Discuss the anatomy of various conditions causing this, with physiology, mechanics, pathology, causes, prognosis and treatment.

Discuss epigastric pain: its physiologic, anatomic and clinical significance.

A patient receives an injury to the spine in an accident. Discuss what pathologic, anatomic and physiologic lesions may result, with consequent symptoms and treatment.

Discuss from a clinical, physiologic and pathologic point of view a case of placenta praevia in which the patient has lost 1,500 c.c. of blood in eighteen hours. Give prognosis and treatment. Discuss a case of hemorrhoids in which the patient has lost blood steadily over a period of months. Give prognosis and treatment.

Discuss empyema of the pleural cavity: anatomy, etiology, pathology, signs, symptoms and treatment.

Discuss the subject of infected traumatic wounds of the soft parts, from the following standpoints:

Types of wound.

Bacteriology, and the reaction of the tissues to the common contaminating organisms.

Clinical picture of the various specific infections which may develop.

Immediate preventive treatment in case the patient is seen early.

Local treatment in case the infection becomes established.

Discuss dyspnea, cyanosis, edema and ascites.

Write an essay of not more than 2,500 words on any subject taught in the medical school.

Discuss the mechanism of the heat regulation of the body and the significance of the information that may be obtained by a study of the patient's temperature.

Discuss briefly the relative value of the history, physical examination, laboratory and special examinations in the diagnosis of seven of the eight following conditions:

Tuberculosis of the lungs.
Gallbladder disease.
Diphtheria.
Eclampsia.
Myxedema.
Acute otitis media.
Carcinoma of the rectum.
Acute glaucoma.

Discuss typhoid fever from the etiologic, serologic, pathologic, epidemiologic, clinical and therapeutic standpoints.

These samples indicate the character of the questions. As I said, the students have had as much as a half day to answer each of those questions. Two questions (on two separate days) are given each year. The students fully understand that they are to discuss the questions from all angles that occur to them as significant in relation to any of their work in the medical sciences or the clinical branches.

EFFECT ON THE STUDENT

The effect on the student is what interests me because, after all, that is what we are after in education. When this plan was first presented to the students, particularly in the newer and more defined form, they were somewhat frightened. They thought it was a severe ordeal and they worked in terror,

almost, for three or four months beforehand. But even after that first examination in the present form, they told me that it was perhaps the fairest they had ever had, that they thought it did more to give them an opportunity to show what they knew and did not know than any other.

Five years after that particular time, last year, that is, I had conferences with the several classes about a variety of things, among others, methods of examination. They were then asked to hold class meetings and make recommendations about certain things, among others, about the methods of examining. I got almost unanimously from those classes the statement that the general examination was the fairest and most effective method of examining that they had ever met, and they requested that honors be determined entirely by this general examination, as they said it went further than anything in the course to determine who was an effective man at the end of the course. That was their spontaneous opinion.

On the other hand, how much can the student correlate at the end? That is difficult to state and I cannot go into details in regard to it; but the thing that especially interests me is that at once it was apparent, even in the first year, and particularly after another year, that the student will do a great deal more of this, and do it reasonably well, if one asks him to. We were surprised from the beginning to see how well many could do it. Many wrote highly intelligent books that were practically short essays from the outset and that improve constantly.

I think we do not ask enough response from the individual intelligence of the students, as against their mere memories. I believe the Dartmouth College students were quite right in their report to President Hopkins in which they essentially said, "Expect more of us and put more responsibility on us." If we ask a man to be intelligent, he will be intelligent unless nature has not equipped him to be so.

The effect on the faculty is the other thing that is of interest. This examination stands out ahead of the student as something that he is working up to and that he knows from the beginning that he is working up to. He naturally tends to think along these lines. This inevitably reflects back to some degree on the faculty. The large board of examiners, in the first place, have a wholly different point of view about their teaching from what they had before. The student's point of view, his questions, and the actions of the examining board lead all the members of the faculty to think and to teach in this line more than they would without this method. It becomes consciously or subconsciously demanded by many students; and if many students demand a thing, teachers give it to them.

The responsibility in the teaching necessarily depends in the matter of correlation, chiefly on the clinicians in the clinical years. We cannot seriously attempt to correlate anatomy, physiology, etc., with things that are perhaps two or three years ahead. We can make a few suggestive impressions, but the major responsibility falls on the clinical teachers in the latter part of the course. The clinical teachers have to prepare their minds and their knowledge to meet this situation.

This examination has another effect which I think is very important to a medical school; namely, it gives the most graphic method that I have yet met of recognizing the weak and the strong parts of the actual course in the school. The examining committee makes a careful study of the results and reports on them as to the defects, the misunderstandings or what not that seem to be apparent in the minds of students often enough to make them significant. It gives more of a method of dissecting one's own course in an intelligent way than any other method that I have seen.

CONCLUSION

Let me again repeat this one point. I am not here to advocate our own particular method of doing this. This is, as I said, an application of a thing that general educators have done before, modified in order to fit medical conditions. It has been useful; I think it can be made still more useful. It is a very serviceable way of meeting what should be an essential purpose; namely, to try to see that the student has not merely been put through a machine when he graduates, but has become more of a thinking creature.

FULL TIME: THE LETTER OR THE SPIRIT?*

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There are at this time a number of medical schools in the United States whose clinical departments are to a greater or less extent organized and operated on the principle of so-called full time. I say "so-called" because the definition of the term full time differs so much in different schools that the principle itself has not always been recognized as the same on account of its many different applications.

At one school, for example, where the clinical departments were said to be on a full-time basis two years ago, the professor of surgery was free to take charge of as many private patients as he cared to in the university hospital (collecting his fees himself), and could in addition visit private patients anywhere outside the hospital, provided they were of such eminence as to justify this rather unusual liberty for a full-time professor. Contrast this with the situation at another school, where the professor of surgery was not permitted at that time to examine or care for any patient outside the hospital and could charge no private patient a fee—much less collect it for himself. Yet both these departments were called full-time. It is true that one of them laughed a little at the other's strictness, and that the other rather despised the one's laxity; but the two were equally full-time to the outside view: just as one may be a Davis Democrat or a Bryan Democrat and still satisfy the party's nominal claim without subscribing to every plank in its platform.

The principle of full time, as I understand it, is very simple. It demands from every incumbent the thorough, efficient and earnest performance of the duties of his office, whether research, teaching, care of the sick or mere administration. It lays this down as a condition, sine qua non. It does not, of course, specify how the condition is to be effected. That is merely a matter of method where choice is still permissible. This principle, I think, is now pretty generally accepted. The method of its application, however, in all its details has not yet been—may never be—completely agreed on. Discussion along this line is still open and, because the principle of full time has been perhaps somewhat confused with the method of its application, such discussion may even be profitable. It might even serve to point out—what

* Read before the Association of American Medical Colleges, Boston, March 6, 1925.

I believe to be true—that the principle itself has been a little lost sight of in partisan adherence to the details of this or that plan of organization adopted with a view to securing the desired effect. Now, it is always possible to differentiate the spirit from the letter of any plan of organization and to discriminate between them. And it appears that there still exists some difference of opinion regarding the relative value of the letter and the spirit in the administration of a plan. This is a difficult question and, for the man who prefers the letter to the spirit, I confess that I have no convincing answer. But a statement may here be ventured as regards any plan of full-time organization. The spirit of it must first be discovered or created and then fostered, a process painfully suggestive of evolution. The letter of it, on the other hand, can at once be enforced by suitable restrictions and regulations with the delightful rapidity of mere legislation.

On the face of it, the latter is easier to accomplish: A man walks into the hospital or school at 9 a. m.—or at 8, if you please—and signs his name in the time book. At 4 or 5 p. m., he signs again and walks out. He has "confined his work to the school and the hospital." He is therefore "a full-time man." He has complied with the letter of the law. Just what and how much he has done during the eight hour shift is between him and God. That, of course, is where the spirit counts; and it would appear that a very honest and well intentioned man is needed for full time because between 9 and 5 he is his own boss. After a certain period, to be sure, he is called on to exhibit some evidence of his industry. This generally takes the form of a publication that is expected to show originality. In that case it would appear that the full-time man ought to be intelligent as well as honest, and ought to have some originality of thought. If, during his labors, he has been so fortunate as to hit on some discovery or to formulate some method whose practical application promises or proves to be of value to the community or to the world, he may be crowned with fame. A purse may even be added to the crown. But if he has not been so fortunate, he is expected to work just as hard and to be content with the reward of virtue. Therefore the full-time man ought to be conscientious to a high degree; for it is justifiable to say that most of us work for a reward of some sort rather than for the mere joy of working.

There are, it must be admitted, certain classes of men or, perhaps better, individuals among certain classes who do not comply with this generalization: tramps, poets, painters, real investigators, true physicians and born teachers are exempted. They apparently think more of the pleasure they find in their own occupation than of the pecuniary rewards which might enable them to escape from it for a time. They may have to bank its proceeds against a rainy day or to keep the wolf at a decent distance from the domicile. But some of them actually forget to close the windows on the rain and shut the door against the wolf: they get so interested in what they are doing. It seems evident, then, that a full-time man ought to be deeply interested in his work. Conscientiousness is a good thing, but it cannot permanently or continuously take the place of a living interest. Independence must be considered also. Pressures are brought to bear on all of us at times. Hidden influences; subtle temptations; promised preferments; threatened condemnation; pressures invisible, intangible, impalpable; so light that they would not tip a chemist's balance, so delicate that they would not register on a string galvanometer, but weighty to the mind that apprehends them. It requires courage to withstand such pressures. It is very clear, then, that a full-time man ought to be, within reason, independent.

These are some of the qualities that real leaders have: qualities that one must find in a full-time leader if he is to fulfil the spirit of the law. Of course, he ought to be well educated in general and well trained along the lines of his special endeavors. It were well if he had an agreeable disposition for the sake of his colleagues; initiative and administrative ability for the sake of his department; a striking personality for the sake of the public, and a cheerful and courageous spirit for his own sake to meet those disappointments which are the constant fate of all idealists. The real full-time man is an idealist. He is honest, he is intelligent, he has originality of thought and independence of judgment, he is conscientious and, above all, he is interested in his work. Now these are qualities which are born in a man—not made to order. He may be chosen as a full-time man because of them, but he cannot be made to have them simply because he has been chosen. Moreover, they are qualities which develop rather under the tutelage of tradition and example than by precept and prohibition. Real full-time men are born, not made.

Am I filling in the outlines of a dream, you ask? On the contrary, I am describing men whom I know; whom I have worked with in all departments, fundamental and clinical. Not all of them have every one of these mental qualities in full measure, but each man has enough of them to make him noteworthy. Some of these men are bodily cripples but, spiritually, they are masters all. Their courage, their devotion, their constancy, their spirit of service is a guiding influence, an uplifting power, felt at once but not perhaps fully realized till years after they have gone to their last reward of rest and a good conscience. "A spirit goes out of all men who have meant good work," says Stevenson "even though they died before they had time to sign it." A spirit, indeed, goes out of them. Think of Paré, of Hunter, of Jenner, of Lister, of Pasteur. Is it Pasteur's preservation of silk and wine for those who can afford them that has more benefited the world, or is it his love of truth, his devotion to science, his spirit of sacrifice, thrilling our imagination and scourging our sloth? A spirit, indeed, goes out of such men. And, running down the years, it lights a torch here and there in the hands of those worthy to bear them. Think of Halsted, of Osler, of Delafield, of Prudden, of Richardson, of Warren, of Mitchell, of Leidy, of Huntington and of a score of others. Were these the kind of men who must sign a book or punch a time clock or who cannot be allowed to collect their own fees or to decide what they ought and ought not to do? Or are their intellectual descendants, the full-time teachers of today, less to be trusted? Would you say that this type of man ought to be restricted either in his work or in his recreation? Yet consider the restrictions that were planted round him like a fence under the polite fiction that they were for his protection. In order to continue to exist, he must acquire the ability to protect himself. Too much restriction, too much protection, too much standardization, do not make for the development of character, intelligence or initiative. If these exist in any individual, why not give them a chance to grow? Why set up class distinctions of full time and part time in what should be the truest of democracies where we are all together engaged in the pursuit of knowledge, the diffusion of knowledge and the application of knowledge?

Do you recall Solon's reply to the critical questioner of the value of his codification of the laws of Athens? "Are these the best laws that you can make?" asked the heckler. "No," replied the sage with a patient smile, "but they are the best laws that the Athenians will keep." There is a wisdom and humanity in that reply which challenges attention and deserves remembrance.

High ideals are admirable things and necessary for real progress, but they can be realized only in dreams or in that delightful form of exaggerated literary freedom known as poetic license. The magnificent Leonardo said, "The greatest misfortune is when theory outstrips performance." But the greatest living exponent of full-time restrictions told me one day, with apparent satisfaction, that when he was a school teacher he had absolutely ignored the rules imposed on him by his official superiors. I submit that I admired him for his insubordination. He was and is an admirable man not because he broke the rules but because he kept something better unbroken, the spirit of good teaching. But is any man properly above the law? Would it not, in his case, have been better had the rules been adapted to his superior intelligence and initiative? And would it not be better and more practicable to formulate any necessary restrictions regarding full time in medical schools in such manner as to allow a broad interpretation that would cover the cases of other men of unusual character and intelligence and initiative? After all, the best you can get out of any man is his own best, not some one else's.

Cannot freedom be had without license among men of character and intelligence? Does distrust breed loyalty? Does prohibition rouse enthusiasm? Does initiative gain value under restrictions? Why not rid the full-time policy of any shadow of distrust, of all irritating prohibitions and of all hampering restrictions? Why not introduce into it all the freedom and confidence that we reasonably can? These were some of the questions that came up for consideration in our experience with one plan of full-time clinical service at the College of Physicians and Surgeons. Let us be quite honest: Full time is a good thing in principle. But let us be sensible, too. It is admittedly possible to have too much of a good thing in practice. A question arose for judgment. Was it not time to redraw the letter of the full-time plan so that it might more nearly match its true spirit of full service?

The problem of university full time has theoretically a very simple solution: find the right man; put him in the right place; give him all the freedom of thought and action that is possible under the university statutes. To translate that theory into practice is not always so simple.

Our former full-time plan, with its specific restrictions for men in the clinical departments, was in theory intended to offer freedom and afford opportunity. But it grew into something very much like involuntary self denial as we practiced it. Now we have altered the details of the plan without in any sense altering the principle of full time it is intended to apply. There is a statute 65 of Columbia University for the government of all officers of instruction in every department of the university, clinical or otherwise. One cannot but admire its flexibility and breadth. It deserves a more frequent quotation than it has had, and a wider recognition than it can secure in a university report: "No officer of instruction," it reads, "shall be employed in any occupation which interferes with the thorough, efficient, and earnest performance of the duties of his office." This is our decalogue. This is the only prohibition that we now subscribe to. All our departments are now on this same university basis.

"The quality of mercy is not strained." Nor can the quality of service be constrained. Full service is not always given in full time. Full time is merely a means to an end. Full service is the end it aims at. It cannot be forced by regulations. It is born of a tradition; fostered by example, and nourished by loyalty to the spirit rather than to the letter of the law.

If we must have precepts and admonitions, let them be exhortations rather than prohibitions: Let us write above the entrance to our laboratories, wards and class rooms: Thou shalt love thy work with all thy heart and with all thy soul and with all thy mind. Thou shalt trust thy colleague as thyself.

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THE POSSIBLE RELATION OF COPPER TO DISEASE AMONG THE KOREAN PEOPLE*

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More than ten years ago, my attention was directed to the possible relation of copper to disease by some attempts to influence the course of experimental tuberculosis by means of copper salts.[1] Difficulty was experienced in introducing the material at frequent intervals and for a sufficiently long period of time without causing too much injury from the repeated puncturing with the hypodermic needle.

At this time I was director of the Research Department of the Severance Union Medical College, at Seoul, Korea, and immediately realized that the Korean people, numbering about 17,000,000, were voluntarily performing this very experiment in their everyday life. An explanation of their habits of preparing and eating food will elucidate this point.

Brass is the universal material out of which they manufacture the rice and other food bowls, spoons and some of the kitchen utensils. Wine bottles, some of the stills for making fermented liquors, and a form of chafing dish are also made of this substance. Food is served in these vessels, or, in some instances, cooked in them, and may be allowed to remain there a longer or shorter period of time. Working men usually carry their lunch to the field in such bowls. Any food left over serves for the evening meal or is brought back home. In the kitchen, remnants are frequently left in the bowls from one meal to the next.

The nature of some of the foods is such that they would probably exert a solvent action on the brass. A native salt pickle, similar to sauerkraut, contains a considerable quantity of organic acid. Vinegar is used to a slight extent. Meats, fish, sesame oil and other fried and greasy foods form a reasonable portion of the daily menu.

During the consumption of the food, every time a brass spoon clicks against a brass dish a minimal amount of the metal is scratched off and is swallowed with the food.

Children are given more or less solid food within a few days after birth, and the constant ingestion of

* From the Department of Pathology, University of Chicago.
1. Corper, H. J.: J. Infect. Dis. 15: 518-540 (Nov.) 1914.

copper continues until death. The life span seems to be reasonably long, a couple of dozen centenarians having been listed by the authorities a few years ago.

The effect of copper on spontaneous tuberculosis appears to be negligible, the incidence being about as high as in other countries similarly situated. When it occurs it is more often the acute, fulminating or miliary type than the chronic phthisis, reflecting the lack of childhood immunization, perhaps with the bovine strain. (The native cattle are free from the disease, and cow's milk is not an article of diet. Bovine infection in man has not been reported, and I have often sought for it in vain.)

The people themselves feel that the use of brass utensils is in some way a protection against disease. A family may be so reduced financially that it is compelled to sell off most of its possessions, but the brass dishes are the last to go. Bowls of glazed earthenware and spoons of iron may be purchased in the markets for a small fraction of the cost of the brass ones, but the people cling persistently to the time-honored custom. When asked for an explanation, they have repeatedly told me that brass bowls protect them from epidemic disease. (This term includes also what we recognize as infectious diseases.)

The appearance of an article by Mallory, Parker and Nye,[2] in which they produced a form of hemochromatosis by poisoning animals with copper salts stimulated this interest, and led to a study of the conditions surrounding those who work in brass. Conditions were found to be anything but sanitary, but most of the lathe work was done in semiopen rooms, and the metal often melted and poured in the open air. Eating with unwashed hands was the usual thing. The workmen themselves did not appear to be suffering from any symptoms of brass poisoning, and they were unaware of any disease that was common to the trade. There was no evidence, therefore, that these workers were any more affected by any form of disease than the general population.

The recent paper by Mallory,[3] reiterating his belief in the relation between chronic copper poisoning and hemochromatosis, is the occasion for the publication of these observations. In a series of almost 100 necropsies on Koreans, no disturbance of pigmentation of the internal organs was noted. The pancreas was especially studied for other reasons, but no changes of this sort were observed. In Sprunt's[4] series of sixty-three cases of hemochromatosis, fifty were affected with diabetes of the bronzed type. Among the Koreans the bronzing might be overlooked, but the incidence of diabetes is low. In a series of 3,045 routine hospital examinations of twenty-four-hour urines, only two cases of diabetes were discovered by VanBuskirk and Mills.[5] Sugar, or some reducing substance, was found in thirty-three more cases, but they were not true diabetes. In a later special study of the sugar in urine, 3,705 specimens were examined by VanBuskirk,[6] in forty-eight of which a reducing substance was discovered. Of these, five were true diabetes, a proportion of 1:965 persons, or 0.1 per cent. of the hospital clientele. None of these persons were seriously ill, none in coma, and none came to necropsy. If the ingestion of copper were responsible for cases of diabetes, the incidence should be infinitely greater than in the United States instead of definitely less.

The deposition of pigment, according to Opie,[7] gives rise to degeneration of the liver cells. Cirrhosis of the liver is a common disease among the Koreans. Excluding the injury produced by *Clonorchis*, and the usually assigned causes of the disease, there still remains a considerable number of cases of unknown etiology. These cases are commonly in young persons, especially girls, below the age of 15 years. It is possible that chronic copper intoxication may be the explanation.

These facts have been brought to the attention of the profession, not in an attempt to disprove the contention of Mallory and his associates, but to throw more light on the problem from an angle thus far scarcely considered. It is hoped that careful search will be made for evidences of copper poisoning in clinical and necropsy material in the Orient, and special study made of those cases of diabetes and cirrhosis as occasion offers.

2. Mallory, F. B.; Parker, F., Jr., and Nye, R. N.: J. M. Research 42: 461-490 (June-Sept.) 1921.
3. Mallory, F. B.: Am. J. Path. 1: 117-133 (Jan.) 1925.
4. Sprunt, T. P.: Hemochromatosis, Arch. Int. Med. 8: 75-129 (July) 1911.
5. VanBuskirk, J. D., and Mills, R. G.: China M. J. 38: 184-194 (March) 1924.
6. VanBuskirk, J. D.: China M. J. 39: 47-48 (Jan.) 1925.
7. Opie, E. L.: J. Exper. Med. 4: 279-306, 1899.

PHYSICAL FITNESS FOR ORPHANS

A DEMONSTRATION *

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Conditions for the care of orphan children have made great advances in recent years. While the consensus of opinion now favors placing these children in "foster" or real homes instead of massing them in institutions, yet there are many forces that tend to prolong the older form of "asylum" care. The census report shows more than a thousand of these institutions in the United States. New York State, according to a Russell Sage Foundation report, has 490 children in this class in every hundred thousand of the population. The average for eleven states is one child for every thousand of the general population.

Our nutrition program was worked out primarily for service in the clinic, the home and the school. When, therefore, in connection with our various nutrition institutes held in the larger cities, opportunity was afforded us to conduct classes in orphan "homes," we were greatly interested to be able to compare results obtained in situations offering especially adequate conditions of control with those secured in ordinary homes.

We are now able to bring together the material worked out in fourteen of these institutions, located in states ranging from Massachusetts to Colorado. From these returns it is evident that, whatever may be the form that public opinion may determine for the future care of orphan children, the present type of institution has a remarkable opportunity, while it exists, to demonstrate the effectiveness with which a definite nutrition program may be used to bring practically all its members into a state of proper physical fitness within a short period of time.

Our work is based on the very complete physical growth and social examinations that we make of all children in our nutrition classes. We have found that the item in these examinations that offers the most definite relationship with a condition of inferior physical fitness is the weight-height index, and a clinical study of thousands of cases has led us to adopt the measure given by 7 per cent underweight for height as the

* From Nutrition Clinics for Delicate Children, Inc.

minimum basis of selection in determining which children require care.[1]

An analysis of the examinations already referred to has shown that practically 90 per cent. of malnourished children—amounting usually to one third of preschool, school and college membership—are due to one or more of the following five causes: (1) physical defects, especially nasopharyngeal obstructions; (2) lack of home and personal control; (3) overfatigue; (4) faulty food habits and improper food, and (5) faulty health habits.

A comparison of the results of weighing and measuring the children in the various orphan asylums in which we have worked shows that usually a larger proportion

TABLE 1.—*Distribution of Underweight Children in Schools and Orphanages*

	Orphanages Per Cent.	Schools Per Cent.
American white	15	40
German	3.3	35–40
Colored	4.3	22

of these children are underweight for height than are the children in general who are attending the schools. In Indianapolis, for instance, two thirds of the children in the institutions were below par, and nearly half were in the seriously underweight group. In Cleveland, the percentages were much the same. In the public and parochial schools, the proportion of seriously undernourished children ran from 30 to 34 per cent.

The great advantage offered by institutional life in the working out of this problem lies in the excellent opportunity for the cooperation of the essential factors. There need be no delay in giving the physical growth and social examinations, and the needs which they reveal can be attended to at once. Thus, in one institution, 90 per cent. of the underweight children were brought up to normal weight within six months. During a period of twenty-nine weeks, the gain of the entire group averaged 10⅘ pounds (5 kg.), and no child made

TABLE 2.—*Gain in Weight in Group of Children from February to May*

	Weighings	
	February Per Cent.	May Per Cent.
Safety weight zone (0 to 20 per cent. above average)	62.5	83
Borderline (less than 7 per cent. underweight)	22.5	14.5
Seriously underweight	15	2.5

less than 10 pounds (4.5 kg.) gain in a year's time. In another group, a reduction from 33 to 14 per cent. underweight was accomplished from September to June. In this city, at the end of a year's demonstration of the program in the orphan homes, the distribution of underweight, as compared with the children in the schools of the same city, was as shown in Table 1.

In a third city, the initial weighing showed 64.5 per cent. to be physically unfit. A thoroughgoing campaign reduced this percentage to one tenth of the original showing, and of the 7 per cent. still remaining below par, four of the children were newly enrolled and had been in the home for less than a month.

A similar report shows again 90 per cent. reduction in the underweight group, and a list of the children still below the line runs as follows: "Only with us six weeks" and "needs an operation for diseased tonsils, but this has been delayed because the child is suffering from a contagious disease." In this institution it also appeared that half the children newly admitted were immediately in need of care in the nutrition class.

A comparative summary of another group of forty-one children is shown in Table 2.

The one child still in the danger zone was a cardiac patient who had made a good beginning, but on account of special complications had suffered a relapse.

In sixty-five children who were originally showing the usual percentages of underweight, 95 per cent. were in the safety and borderline zones within a few months, and only two children were still in the danger group.

Even in an institution, we had reason to see that the child's own interest must be enlisted and that it is not enough to have convinced the adults of the wisdom of the nutrition program schedule. In one orphanage, a little girl held out for an entire year. The changes accomplished by the children who were with her in the class seemed to have no influence on her. At last the superintendent decided to drop her from the class, but he wisely saw to it that she gained no apparent advantages from the new adjustment. She was much surprised to find that she had to go to bed at the same time as before and was permitted to omit none of the usual rest periods. This new view of the situation

TABLE 3.—*Weight Gains in Catholic Home Between February and June*

	February Per Cent.	June Per Cent.
Safety weight zone	0	45
Borderline	10	33
Danger zone	90	22

evidently made an impression on her, and she went to work on her own account. In three months, she had come up to standard weight.

The superintendent of a leading Catholic institution reports that, three years ago, forty out of 110 children were below par. Now, in the same number, there are only three such cases, and two of these are newcomers. In a second Catholic home, the changes in distribution accomplished within five months among the members of the nutrition classes are shown in Table 3.

The children in this group averaged nearly 2 pounds (1 kg.) gain each month, making an advance of almost 2 per cent. reduction of underweight every four weeks. It has been our general finding that malnourished children are overheight for age as well as underweight for height. In this particular group, however, only 10 per cent. of the underweight children were up to the usual height for their ages, showing that they were not only underweight for height but also stunted. We have found that a gain in weight on the part of stunted children is accompanied by a gain in height. In this group only two of the children gained less than half an inch during the five months, and the average for all of them was up to what would be expected of children of their ages for the same period of time.

Our most interesting experience occurred in a large city that has two homes for Jewish orphans, about 300 children in each home. Through the work of one of our nutrition institutes, the children were weighed and measured in each of the institutions early in the spring, and it was found that one group had 38 per cent. and

1. This subject is discussed at length by Emerson, W. R. P., and Manny, F. A.: The New Weight-Height Tables, Arch. Pediat. 41: 677 (Oct.) 1924.

the other 48 per cent. in the underweight zone. This condition was a surprise to all concerned, and measures were immediately adopted to correct it. Our nutrition program was put into operation in one situation, but in the other it was not carried out. Naturally, we were glad to have the experiment take this control form, as there was no doubt that the management in each case was thoroughly in earnest and ready to use all its resources to eliminate malnutrition from the children concerned. At the time of the next weighing, the home that had adopted the nutrition program had reduced its percentage of underweight 31 per cent.—that is to say, instead of the original 38 per cent, only 7 per cent. were still below par. This change had been accomplished within two months from the adoption of the new schedule. In the other underweight group, at the end of six months, the reduction had amounted to only 7 per cent. When this was found to be the result, the management of the second institution decided to undertake the nutrition program, and within a short time the children were practically free from underweight.

In all these institutions we have had thorough cooperation from the superintendents, staff and managers. The comments of the superintendents have been suggestive of the effect of the nutrition program on other phases of the work. The following quotation illustrates this point:

> Unfortunately, in the past we have spent most of our time trying to make our children mentally fit, and sometimes this has been done at the expense of their physical well-being. A boy who is unhealthy because of underweight or malnutrition feels himself out of things because he is unable to participate to the same degree as others in the opportunities which are open to all the children whether in the home or on the playground. He becomes dissatisfied not only with himself but with the people with whom he has to live.

In connection with the comment on the relative consideration given to efforts toward mental and physical fitness, it is interesting to note in the report recently published by a prominent institution for the care of dependent children that several pages were given up to the subject of mental tests, while the subject of physical and social examinations was disposed of in two lines.

SUMMARY

In fourteen institutions for the care of orphans, ranging in membership from fifty to 300 children, it was found that from 30 to 50 per cent. were 7 per cent. or more underweight for height, and from 50 to 67 per cent. were under average weight for height. An application of the nutrition program demonstrated that within periods of from three to twelve months it was possible practically to eliminate underweight from the members of this group and bring the children into a state of normal physical fitness.

270 Commonwealth Avenue.

School Dental Clinics in New York.—School dental clinics are conducted in thirty-six cities, in twenty-four large villages and in two rural communities. Dental hygienists, who occupy a relation to the dentist similar to that of the nurse to the physician, are now employed in twenty-five cities, in seven large villages and in two rural sections. There are 100 places in the state in which oral hygiene work is carried on in the schools. Much volunteer service of which no record is kept is also rendered by dentists. During the past year, the state dental society conducted demonstrations in twenty places in order to show the practical educational value of the hygienists in oral hygiene work.—Howe, W. A.: *Am. J. Pub. Health* **15**:309 (April) 1925.

SIGNIFICANCE OF UNILATERAL DILATATION AND FIXATION OF PUPIL IN SEVERE SKULL INJURIES *

EMILE HOLMAN, M.D.
AND
W. M. J. SCOTT, M.D.
CLEVELAND

No problem in emergency surgery presents greater difficulties of decision than the care of patients who are unconscious following fractures and injuries of the skull. The reasons for these difficulties are many. The occurrence of contralateral brain injury by "contrecoup," the fallacy of interpreting external damage (or absence of it) as an indication of the extent and location of the internal injury, the wide varieties of internal damage that may occur, and the relative greater or lesser importance of such damage according to its location, all combine to make standardization of the procedure to be followed quite impossible. On occasions, rare but nevertheless of sufficient frequency that their occurrence must be constantly borne in mind, the slightest delay in surgical intervention may place the patient beyond relief. One such experience stands out with particular vividness.

> CASE 1.—A young baseball player was hit on the side of the head by a pitched ball. He walked to the bench, but soon complained of headache of increasing severity. A physician was called; there was some delay in transporting the player to the hospital, and before his arrival there he had become unconscious. Further delay was encountered, and the patient died within two hours of the injury, undoubtedly a victim of intracranial hemorrhage.

Any sign that may enable one more definitely to recognize the presence of increasing pressure and to localize the injury more accurately is a welcome aid. We present, therefore, a number of experiences that have prompted us to place considerable reliance on the appearance of a unilateral dilatation and fixation of the pupil as an indication of unilateral cerebral compression, due more particularly to hemorrhage.

It is uniformly recognized that fractures at the base of the skull, with edema and hemorrhage compressing and involving the medulla, are not in the least benefited by an anterior decompressive operation. In striking contrast to the inefficacy of surgery in the treatment of these basal fractures is the benefit that may be gained in those cases in which the injury is limited more or less to the anterior chamber, and often to one of the two cerebral hemispheres. This injury may be a contusion or a laceration of the brain with a subdural hemorrhage, or a rupture of the middle meningeal artery or of its branches, with an extradural hemorrhage. Each of these injuries may, through a slowly progressive localized pressure, due to edema or hemorrhage, produce the general effect of unconsciousness. Surgical intervention directed toward a decompression, or toward the control of hemorrhage at its site, will, in many instances, relieve the general effect, with probable recovery of the patient. Such recovery depends, of course, on the extent of the cortical damage, and on the absence of an associated basal injury.

It is generally agreed that the history of an interval of consciousness after the injury, followed by uncon-

* From the Surgical Service of the Lakeside Hospital.
* Read before the Clinical and Pathological Section of the Cleveland Academy of Medicine, Jan. 2, 1925.

sciousness, is the most unequivocal indication for surgical intervention. Such a history is not always obtainable. The period of consciousness may appear in the first minutes following the injury and be only transitory, or it may be prolonged for days or weeks. The literature describes fatalities that occur even months after the initial injury, subsequent to a slowly progressive intracranial hemorrhage. Other equally convincing indications for surgical intervention are unilateral convulsions, unilateral palsies, accompanying the classical syndrome of increasing intracranial pressure; namely, a slowing pulse rate paralleling a gradually increasing blood pressure.

The difficulty in many of the cases exhibiting evidence of increased pressure only, without any of the usual localizing manifestations, lies in determining the site of the injury, the area of greatest pressure, and, hence, the side on which the decompression should be performed. Unilateral dilatation of the pupil has long been a recognized localizing sign in neurologic diagnosis, and its possible significance in extradural hemorrhage has been indicated by Cushing[1] in the following words:

> Pupillary symptoms, particularly inequalities, are common in this as in other forms of unilateral intracranial hemorrhage. The pressure of the clot against the hemisphere *is said* to cause an early narrowing of the pupil on the same side and later on a dilatation. This dilatation in the late stage may affect both pupils, but even then the pupil on the side of the lesion remains wider.

In spite of this description, textbooks and observers have almost completely ignored the pupillary condition as being of any assistance in the localization of cerebral compression following fracture of the skull. Thus, Thomson and Miles,[2] in describing the symptoms of this complication, write:

> The pupils vary so widely in different cases that their condition does not form a reliable diagnostic sign. Perhaps it is most common for the pupil on the same side as the lesion to be contracted at first and later to become fully dilated while that on the opposite side remains moderately dilated.

And Kearney,[3] as recently as 1922, wrote:

> Pupillary changes per se were found of small value as an indication of excess intracranial pressure or localization of the seat of injury, but they have been an aid, at times, when taken into account with the entire clinical picture.

Our experiences, however, indicate that unilateral dilatation and fixation of the pupil almost invariably occur on the side of the lesion at some time in the course of the progressively increasing cerebral compression from hemorrhage, and serve as a valuable aid in determining the side on which the decompression should be performed. In certain instances the large dilated pupil has been the only diagnostic sign of localization, and, as will be demonstrated, has proved to be of even greater localizing significance than bleeding from the opposite ear, or even a hemiparesis of the same side.

Other observers have indicated the variability of the pupillary signs. We, too, have found that the inequality of the pupils may be a transitory phenomenon only, and that it may be quickly followed by bilaterally widely dilated pupils. This does not minimize its value when found, but makes imperative accurate and repeated examinations by the attending physician, in order that it may not be overlooked. Its appearance and observance depend on several factors: first, on the extent of the injury and on the rapidity with which the intracranial pressure is increasing, and second, as a corollary to this, on the time that has elapsed between the injury and the first observation. Unilateral dilatation has been noted at one moment, only to be followed in twenty minutes by bilateral dilatation of the pupils.

It should be understood, moreover, that this pupillary dilatation due to cerebral compression is pronounced, and when present, there is little doubt of its existence. The pupil is widely dilated as compared to the one on the other side, which may appear to be even unusually small. Little significance can be attached to only slight difference in size. Furthermore, the dilated pupil is also a fixed pupil, and does not react to light. This must be so if the assumption is correct that the dilatation is due to a paralysis of the sphincter of the iris subsequent to a third nerve palsy. It is apparent that any extracranial pressure on the third nerve, such as an intra-orbital hemorrhage, should be excluded.

The mechanism of its appearance is not obvious, but it is assumed that the intracranial course of the third nerve, as it lies against the bony wall of the cranium, lends itself peculiarly well to compression from a pressure applied lateral and superior to it. In this connection the following observation may be cited:

> CASE 2.—A small boy was brought into the hospital, unconscious, with a severe head injury, and with bilaterally small pupils. Pinching the lad caused him to cry out in protest, and it was noted that accompanying the effort of crying was a dilatation of both pupils, with immediate subsidence as soon as the lad quieted down. This was noted repeatedly, and was considered a manifestation of increased intracranial pressure. He died within several hours, of an extensive intraventricular hemorrhage. At necropsy, both lateral ventricles were found distended with blood.

As illustrative of the undoubted value of closely following the behavior of the pupils, particularly with respect to an inequality, and of acting on the information gained from its presence, the following cases are presented:

> CASE 3.—A boy, aged 3, fell down the cellar stairs. He was able to run home, but complained of pain in the left ear, and seemed extraordinarily drowsy; he fell asleep, but awoke after ten minutes, still complaining of the pain in the left ear. Within a short time he became irrational, cried out loudly twice, and then subsided into unconsciousness, with very irregular breathing, as noted by the mother. He was seen in the accident ward about two hours after the original injury. He was deeply unconscious, and could not be aroused. His breathing was most irregular and difficult, with an irregular pulse, varying between 34 and 180, and a blood pressure of 95 systolic and 45 diastolic. He was markedly spastic, with a bilateral ankle clonus. The left pupil was markedly larger than the right. It seemed impossible that he could long survive, but he was immediately taken to the operating room, a left decompression performed, an extradural blood clot between 2 and 3 cm. in thickness removed, and the completely severed meningeal artery ligated. The child became conscious immediately after removal of the clot, and ether anesthesia was necessary before the wound could be closed. The pupils were small and equal at the end of the operation. Complete recovery followed.
>
> CASE 4.—A man, aged 34, whom we had the opportunity of observing in the private service, entered the hospital on the tenth day following an accident. Conscious at first, he did

1. Cushing, Harvey: Surgery of the Head, in Keen's Surgery **3**: 17-276, 1912.
2. Thomson and Miles: Manual of Surgery, London, Hodder and Stoughton **2**: 328-372, 1921.
3. Kearney, J. A.: The Value of Eye Observations in Fractures of the Skull and Severe Head Injuries, New York State J. Med. **22**: 341-344 (Aug.) 1922.

not lapse into unconsciousness until the seventh day after the injury. In this interval of consciousness there was frequent vomiting, and the family physician noted a right sided weakness. On admission to the hospital, he was unconscious and presented a confusing picture. In spite of a fracture of the right vault, as disclosed by a roentgenogram, he showed a right-sided paresis, which was quite evident to several different observers. His right pupil, however, was widely dilated and larger than the left, and both were immobile to light. Over the right parietal region was found a considerable discoloration of the scalp with ecchymosis, while over the left occiput was a jagged laceration of the scalp. A blood pressure of 138 systolic and 78 diastolic was recorded, with a pulse of 60. On the basis of the right-sided weakness, and disregarding the dilated right pupil, a left decompression was performed. No bleeding was found, the condition was unrelieved, and terminated in his death twenty-four hours later, from increased intracranial tension. A blood pressure of 170 systolic and 80 diastolic, and a pulse of 66 were recorded one hour before his death, which occurred after several hours of Cheyne-Stokes respiration with long periods of apnea.

It is interesting to note that at an examination eighteen hours following the decompression on the left side, the right pupil was still fixed and dilated, while the left pupil remained small and contracted. The left eyeball was turned inward, and in its movements never passed the midline, indicating a probable left sixth nerve palsy. The right eyeball remained perfectly motionless during the evident and frequent movements of the left eye, indicating both sixth and third nerve palsies on the right. The reflexes on the left became excessively active, as compared to the right, with a pseudo ankle clonus on the left. One hour after the foregoing examination, the left pupil was noted to have become widely dilated and fixed, and remained so until death one and a half hours later. Necropsy revealed an extensive right-sided subdural hemorrhage over the frontal and temporal regions, with a long laceration of the cortex of the temporal lobe (Fig. 1). The convolutions over the left cerebrum seemed unusually flattened. The long interval of consciousness following the accident and the limited character of the cortical injury suggest that a right-sided decompression might well have resulted in recovery.

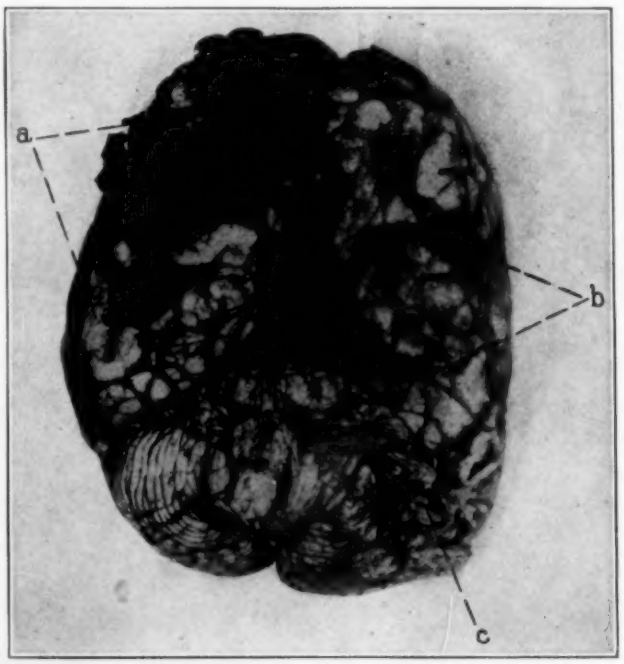


Fig. 1.—*a*, extensive hemorrhage and cortical injury in the right frontotemporal region; *b*, brain bulging through subtemporal decompression on the left; *c*, postmortem damage in removing the brain.

CASE 5.—A boy, aged 10 years, was admitted to the hospital, unconscious, with an evident fracture of the skull, as shown by crepitus; also, a fractured pelvis, three fractured ribs, and large hematomas of the scalp on both sides. The left pupil was larger than the right. Within eight hours he showed a marked bilateral choked disk, with retinal hemorrhages on both sides. There were no localizing signs. Both pupils were now widely dilated. As we did not then realize the significance of the dilated left pupil, a decompression on the right was performed. The brain was under tremendous pressure, and the damaged cortex oozed out through the opened dura. Unconsciousness persisted during the next eight days, and accordingly, on the ninth day after the injury, a second decompression was performed on the left. Again the brain was under great pressure. Within three days after the second operation, the patient became conscious and proceeded to an uneventful recovery. On the last observation, about one year following the injury, he was attending school, but his memory was poor and his behavior intractable.

Two fatal cases may be cited to illustrate the rapidity with which the pupillary dilatation may appear on one side, and be followed after a brief interval by dilatation on the other side.

CASE 6.—A man, aged 40, was admitted, deeply unconscious, immediately following a street car accident. On admission both pupils were equal; the pulse rate was 72; the blood pressure was 140 systolic and 80 diastolic. Within twenty minutes the pulse rate fell to 52, the blood pressure rose to 170 systolic, and the right pupil became dilated and fixed. Reflexes were diminished but equal on the two sides. Ten minutes later, both pupils were dilated and fixed. The pulse increased to 110, and the blood pressure to 175. A right-sided decompression was done, a large amount of extradural clot was removed, and a bleeding meningeal artery was controlled. The opened dura, however, showed a cortex with many hemorrhagic areas, and the patient died three hours later.

CASE 7.—The patient was brought in deeply unconscious, following a drunken brawl, with irregular, stertorous respirations, a low blood pressure, and a weak, irregular pulse. The right pupil was widely dilated, and did not react to light. There was profuse bleeding from the left ear, with roentgenographic evidence of a fracture in the left mastoid and occipital regions. Lumbar puncture yielded a bloody fluid with a hemoglobin index of 60 per cent. One hour after admission, both pupils were widely dilated and fixed. Death occurred within two hours of admission. The coroner's necropsy revealed a fracture of the skull on the left, but a large subarachnoid hemorrhage on the right over the frontal and temporal lobes, subsequent to a laceration of the temporal and frontal lobe cortex (Fig. 2). The dilatation of the right pupil gave evidence in this instance of a hemorrhage due to "contrecoup" injury, the skull having been fractured on the left.

Similarly, the following case was of particular interest in that the profuse bleeding from the left ear was entirely disregarded as of localizing significance in the face of the dilated right pupil:

CASE 8.—A man, aged 45, admitted following a blow on the right occiput, was dazed, but sufficiently conscious to answer questions. Vomiting occurred twice. There was considerable bleeding from the left ear; and on admission both pupils were small, equal, and reacted to light. The pulse rate was 88, with a systolic pressure of 132 and a diastolic pressure of 80. Within thirty minutes after admission the patient became deeply unconscious; the pulse rate became slow, decreasing to 52, and the systolic blood pressure became elevated to 170. At this time the patient developed a widely dilated right pupil, which was fixed and unresponsive to light. The left pupil was small, and reacted but little to light. There was no difference in the muscle tone of the two sides. A roentgenogram of the skull showed a fracture line in the right occipital region, running down toward the base; also

a fracture in the right temporal region. In view of the signs of increasing intracranial pressure and the secondary unconsciousness, a right-sided decompression was performed. The dilated right pupil was made the determining factor in the choice of the side for decompression, in spite of the fact that the patient was bleeding vigorously from the left ear. There were no other localizing signs.

The operation revealed a dura under greatly increased tension. It was opened, and a large subdural clot in the right temporal region, running upward over the right parietal cortex, was removed. The brain itself did not protrude into the wound. On completion of the operation, both pupils were found to be small and equal. Two hours after the operation, the pulse had increased to 92, and blood pressure had returned to 138 systolic and 70 diastolic. The patient did not recover full consciousness for about forty-eight hours. At that time it was noted that he had a definite ptosis of the right upper eyelid, with a divergent squint due to a paralysis of the right internal rectus. The pupils were equal, and reacted to light. The ptosis and strabismus gradually disappeared. It is evident that all the muscles supplied by the third nerve were implicated in this instance.

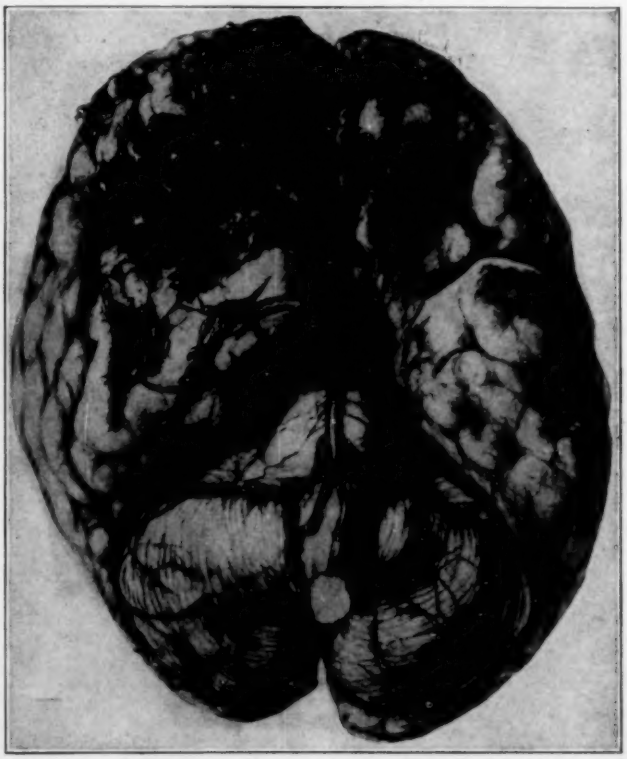


Fig. 2.—Cortical injury and hemorrhage on the same side of the brain as the unilateral dilatation of the pupil, in a fatal case of intracranial damage.

COMMENT

The foregoing notes serve, we believe, to indicate the importance of accurate and frequent observations of the pupil in patients who become unconscious as a result of head injuries, as they may well be a valuable aid in determining the side on which the operation for the relief of intracranial hemorrhage should be performed.

The importance of this sign in the absence of other localizing manifestations makes it imperative that its appearance be not prevented by the use of homatropin or other mydriatic drugs following skull injuries.[4] The information available from a study of the eyegrounds can usually be obtained through the undilated pupil, and is, moreover, not to be compared in importance to that obtained from a unilateral paralysis of the third nerve, which may give evidence long before the development of papilledema, not alone of pressure, but also of its location.

SUMMARY

1. Unilateral dilatation and fixation of the pupil is a valuable aid in determining the location of the intracranial injury and hemorrhage following head injuries.

2. Operative intervention should be directed toward the side on which this dilatation and fixation first appear.

3. Its transitory character makes accurate and oft-repeated observations necessary from the moment of injury.

4. The use of mydriatics should be avoided when intracranial trauma and hemorrhage are suspected following severe head injuries.

SUPPLEMENTARY NOTE

NOTE.—Subsequent to the writing of this article, Dr. Emmet Rixford of San Francisco called our attention to a most instructive and valuable discussion of the subject by William Macewen, written in 1887,[5] from which the following paragraph is taken:

"One pupil dilated and fixed, the other normal. Many instances have been observed of dilatation and fixity of one pupil, while its fellow, perhaps with the exception of a little sluggishness of movement, remained normal. These were all cases of fracture of the middle fossa of the skull, and in comparatively few of them was the diagnosis verified by postmortem examination, though little doubt could exist as to the lesion when accompanied as they were by the usual phenomena of hemorrhage from the ear, followed by discharge of cerebrospinal fluid, ptosis, occasionally external strabismus, facial hemiplegia, and paralysis of members. In such the patient was generally insensible at the outset, when both pupils were dilated and fixed. As the patient recovered consciousness, one pupil became normal while the other remained dilated and fixed, this being on the side of the lesion. In some of these the visual power on the same side as the dilated pupil was in abeyance; in others, it was imperfect, and in a few it was almost normal. The pressure exercised by the blood clot must have been sufficiently great to place in abeyance the function of the greater part of the affected hemisphere, as evidenced by the complete paralysis of the opposite member, the interference with vision, and the evident effect upon the third nerve. In those cases in which postmortem examinations were obtained, the basal fracture was continued into or toward the vertex, and the clot in most instances occupied the whole of the middle fossa from the petrous portion of the temporal to the vertex, the convolutions, especially the ascending, being considerably compressed. The opposite hemisphere was in almost a normal condition. In those that recovered, the dilatation gave way slowly, and was followed by a degree of contraction, along with sluggishness of movement which ultimately passed off, though in one case it still remained small and sluggish at the termination of the fifth month from the date of the accident. These changes were evidently determined by the gradual absorption of the blood clot. It is more than likely that in most of them the third, as well as the seventh nerve was paralyzed, and in one or two instances the fifth, in addition, as indicated by the loss of sensation on the affected side. Occasionally the second was interfered with. Hearing was generally much affected, if not absolutely in abeyance on the affected side, during the early months, mechanical obstruction by blood clot producing loss of hearing as well as interference with the nerve."

4. This also serves as an opportunity to emphasize the statement that no drugs be given to patients with cranial injuries—an axiom repeatedly demonstrated but frequently forgotten.

5. Macewen, William: The Pupil in Its Semeiological Aspects, Am. J. M. Sc. **94**: 123-146, 1887.

Clinical Notes, Suggestions, and New Instruments

AN ELECTRIC CABLE DRIVEN BONE INSTRUMENT*

JOHN J. MOORHEAD, M.D., NEW YORK

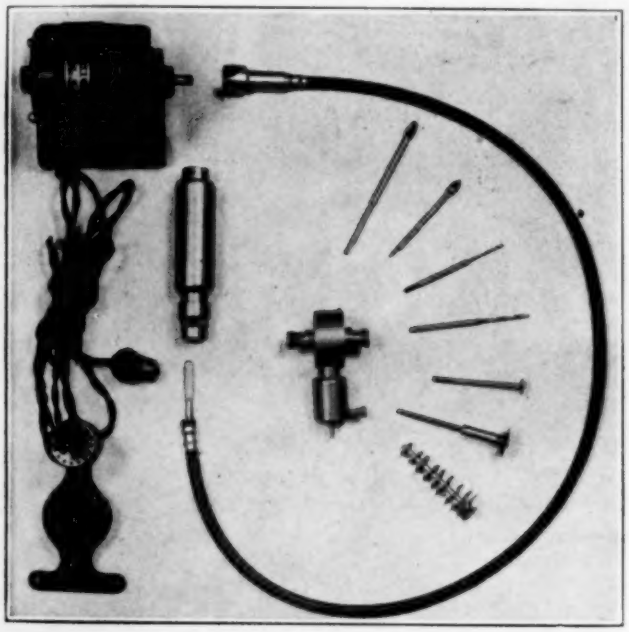
Without doubt, many surgeons have long desired an electric cable driven tool holder that would be as nearly fool proof as the dental engine or the portable electric drill of the mechanic. Existing devices are for the most part rather complicated, and therefore expensive as to initial outlay and upkeep. Most of us do not want an outfit capable of doing every kind of bone surgery, but in the main wish an apparatus to cut a bone graft, fashion a bone pin or bore holes in bone.

The present apparatus is of two types. The favorite, and justly most widely used, was introduced by Hartley and Kenyon in 1907, and consists of a hand held motor covered by sterilizable shell casings to which the tools are directly attached. It is interesting to note that Hartley and Kenyon, from 1900 to 1907, used a flexible shaft made of links or twisted wire; but they abandoned this because it was bulky, and produced a vibration or jarring when kinked.

They had also used an apparatus driven by compressed air, and this and their later device have been described.[1]

In 1915, Albee[2] described his apparatus, and in it, as he states, he purposely retained many of the features of the similar Hartley and Kenyon device, but added then, and subsequently has added, many elements found necessary in his large experience.

The second type of apparatus is cable driven, and this feature, once discarded by Hartley and Kenyon, is now



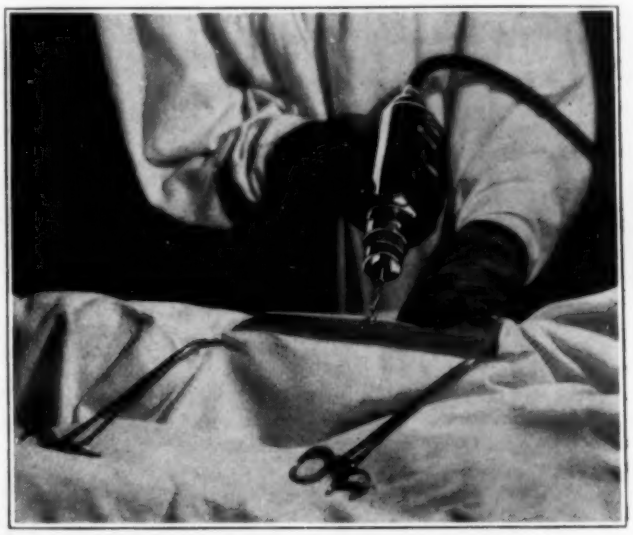
1.—Various parts of bone instrument.

mechanically possible, since dental engines and automobile speedometers demand cable capacity hitherto unknown. The Masland[3] apparatus, for example, is of this type.

My own experience has been that the average user of the electric bone outfit short-circuits it (or it short-circuits) at a most embarrassing stage of the operation. Occasionally, too, the entire motor has been boiled by an ultrasterile operating room crew.

These things, of course, should not happen and probably do not happen when surgeons are doing this sort of work every week or oftener; but my own accidents were frequent enough to warrant an attempt to provide a simple, inexpensive apparatus that would do the ordinary bone work incidental to bone grafting or bone drilling, especially as these surgical acts relate to traumatic surgery.

The apparatus here described was perfected for me, and at first actually handmade, by railway electrical engineers and



2.—The drill in use, showing one hand control.

mechanics, who were asked to devise a sturdy, sterilizable apparatus that could be readily assembled and taken apart by any mechanic, surgical or otherwise.

This cable driven outfit is the outcome, and it is described and presented, not as a novelty, but because it apparently has certain features of sturdy simplicity that put it into the "Ford" group of mechanics and take it out of the "Rolls Royce" group. There are no special casings to add; the motor is entirely out of the field, and the size of the tool holder is convenient enough to provide a firm grip without obscuring the view of the operator.

The apparatus consists of: (1) the motor and foot control; (2) the cable; (3) the hand piece, or chuck, and (4) the special tools, such as saws, drills, and dowel shaper.

Motor.—The motor has one-eighth horse power at full capacity. It is universal and will operate on the direct or alternating current from any light socket. The foot controlled switch regulates the speed and provides a quick stop and start. The speed can also be definitely fixed, if desired, by a clutch on the motor, and thus sudden jerks and jumps are obviated.

Cable.—This is flexible, fabric encased, and similar to that used in dental engines or in automobile speedometers. It can be entirely boiled, or may be covered by a sterile sleeve, and the interior can be disengaged from the casing for lubrication or cleansing. The usual length is 5 feet, but this can be increased or decreased if desired. It can be twisted or kinked without stalling the apparatus, and when attached to the motor by two screws is ready for the operator.

Hand Piece, or Chuck.—This boilable tool holder is about 1¼ inches in diameter, 10 inches long, weighs about 4 pounds, and fits snugly into the hand, not being too thick or too bulky for a one hand grip. In shape and general appearance it resembles a telephone receiver. The main casing itself is of nickeled brass, and all the running parts are of Monel metal, which is nonrusting. The saws and drills are easily attached or detached by turning a ring at the end of the hand piece, and this releases jaws that work automatically after the tools

* From the Department of Traumatic Surgery, New York Post-Graduate Medical School and Hospital.

* Presented before the Surgical Section, New York Academy of Medicine, March 6, 1925.

1. Hartley and Kenyon: Experiences in Cerebral Surgery, Ann. Surg., **45**, April, 1907.
2. Albee, F. H.: Boston M. & S. J., **173**, No. 8, 1915.
3. Masland, H. C.: Ann. Surg. **70**: 750 (Dec.) 1919.

are inserted. The well balanced hand piece is so arranged that it can be turned in any direction, thus obviating the necessity of a right angled attachment, and there is little if any vibration, notably because the motor is 5 feet or more distant. The hand piece has graphited bearings, and requires lubrication only at long intervals.

Special Tools.—These consist of single and double saws so fitted that there is no need for washers to space them properly. The drills are of a convenient size for the average needs and are so fastened into the shank that in the event of breakage they can be replaced by the removal of a rivet. Special burrs, for skull or other bone work, can be attached to the modified shank when desired.

The hand piece can be used with facility in a vertical or transverse position on the limb. Figure 2 shows the one hand control, as for drilling holes. Some operators may desire a pistol grip attachment, which can be readily added. There is no possibility of stalling the motor by a short circuit due to water dripping from any of the contact points, as the motor itself is 5 or more feet distant, and it can be placed under the operating table or on a special table or bench, or, if desired, suspended over the operating table.

There is no excuse for introducing another piece of apparatus into an already overburdened instrument case unless simplicity and economy result.

It is submitted that these merits are provided because:

1. There are only three main parts, the motor, the cable and the hand piece, not one of which is complicated or unusual. Hence, the element of simplicity is provided.
2. Sterilization is readily provided throughout, as the tool holder and the cable are boiled like any other instruments. Hence, the element of asepsis is taken care of.
3. It can be operated from any lighting socket as the motor is universal, bringing in the element of practicability.
4. The entire outfit costs $175, and it can be repaired by any mechanic, making its initial cost and upkeep low.

In principle there is nothing mechanically new about the apparatus unless the hand piece in the general construction can be regarded as somewhat novel, mainly because automobile construction is embodied so that it is efficient, rustless and requires practically no lubrication for a long time.

The Hospital Supply Company of New York, which supplied the illustrations used here, has made some additional improvements on the completed apparatus, which it manufactures.

115 East Sixty-Fourth Street.

ANURIA RELIEVED BY URETERAL CATHETERIZATION IN A CASE OF RENAL HYPOPLASIA *

JULIA C. STRAWN, M.D.; HOWARD CHISLETT, M.D., AND DANIEL N. EISENDRATH, M.D., CHICAGO

A man, aged 45, was seen July 22, on account of severe left-sided renal colic, which had begun suddenly about eight hours before.

About forty-eight hours before the onset, he had fallen into a lake, in a neighboring state, with his clothes on, and had become chilled. Several doses of morphin failed to relieve the left ureteral colic.

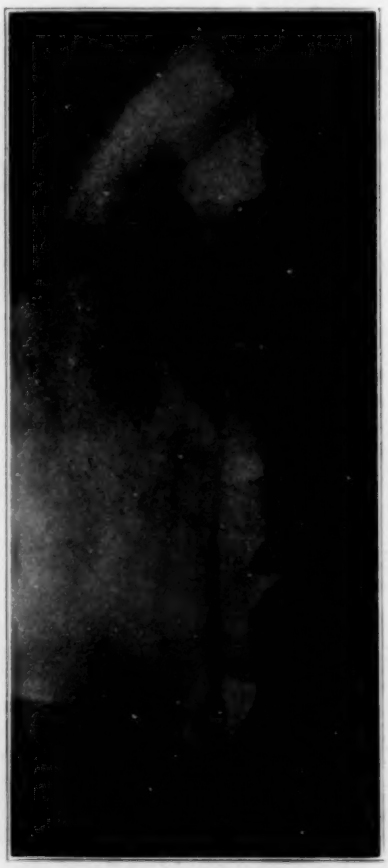
During the first fourteen hours after admission, he passed 3½ ounces of urine, which did not show any albumin, and contained only an occasional white cell. During this period, nausea and vomiting were constant, and there was a frequent hiccup.

Catheterization of the bladder about twenty hours after the onset yielded only 1 ounce of urine, of very dark color. A tentative diagnosis of almost complete anuria due to calculus obstruction of the ureter was made.

Immediate cystoscopic examination was made, and relief by ureteral catheterization was advised. Cystoscopy revealed the presence of two normally placed ureteral orifices. The right one gaped somewhat and seemed retracted. A No. 5 catheter was easily passed through the entire length of the left ureter, and dark urine, intimately mixed with blood, dropped steadily. One ounce was passed in this manner, through the ureteral catheter, in the first fifteen minutes.

On the right side a No. 5 catheter was passed, but encountered some obstruction in the upper portion of the ureter, it was thought at the time. No urine escaped from the right ureteral catheter during the first thirty minutes.

Roentgenography, with the catheters in situ, failed to show the presence of any abnormal shadows in the urinary tract, indicative of calculi. The catheters were left in place, and during the next seven hours 1 ounce of clear urine escaped from each catheter. In addition to this, 34 ounces was evacuated spontaneously during the first twelve hours after relief of the almost complete anuria. The symptoms of renal insufficiency, i. e., nausea, vomiting and hiccup, ceased almost immediately after introduction of the catheter on the left side. Both catheters were withdrawn twenty-four hours after having been introduced.



Appearance of right kidney: long, tapering renal pelvis from which three secondary or minor calices arose directly, without any intermediate major calices.

There were two further attacks of severe left-sided ureteral colic during the next forty-eight hours, and each one of these was accompanied by marked decrease in the output of urine.

These attacks were not accompanied by hiccup, nausea or vomiting, as had been the first attack.

The patient was discharged a few days later and returned, August 16, for further urologic study. This revealed an absence of obstruction to a No. 5 catheter in either ureter. During a period of observation of thirty minutes, only 1.5 c.c. of urine escaped from the right side. This urine contained a few white cells and some casts covered with red cells. During the first twenty minutes, 8 c.c. of pale yellow urine, containing many white cells, was passed from the left side. Indigocarmin appeared on the left side very promptly (in five and one-half minutes) and became deeply concentrated one-half minute later, indicating excellent function. On the right side only a pale blue color appeared at the end of twenty minutes after injection of indigocarmin, and the urine remained this pale blue throughout the examination, of an hour's duration, indicating a very poor function on this side.

The ordinary roentgenogram, with the opaque catheters in situ, failed to reveal any abnormal shadows (calculi). Both ureteral catheters appeared to reach the level of a normally located kidney.

A ureteropyelogram was made of the right kidney two weeks later, and revealed a long, tapering renal pelvis 2 inches in length and three-fourths inch in width, as shown in the accompany illustration, from which three secondary or minor calices arose directly, without any intermediate major calices. The shadow of the ureter was extremely narrow throughout its length. This pyelogram seems typical of the

* From the Chicago Memorial Hospital.

embryonic condition of the renal pelvis, and corroborates the other findings; viz., the marked difference between the function of the two kidneys.

In addition to the present attack, the patient stated that eighteen years before, during a sojourn in Berlin, he had a similar attack, which was also relieved by ureteral catheterization.

Our interpretation of the case is that the patient has a right kidney which has failed to develop; that is, is in a condition of hypoplasia. Following exposure to cold, by falling into the water and lying on the sand until his clothes were dry, there was an acute congestion of the left kidney, followed by colicky pains—a not infrequent accompaniment of such acute congestion. The burden of urinary excretion was thrown on the right (embryonic) kidney, which was unable to carry the burden, with the resultant almost complete anuria and symptoms of renal insufficiency.

The case is somewhat similar to one of anuria in a congenital single kidney relieved by ureteral catheterization which has been reported by one of us.[1]

The origin of secondary calices directly from the renal pelvis is a condition quite commonly found in infantile (hypoplastic) kidney.

22 East Washington Street—4721 Greenwood Avenue—104 South Michigan Avenue.

BACKWARD DISLOCATION OF THE CARPAL SEMILUNAR (OS LUNATUM)

WILTON H. ROBINSON, M.D., PITTSBURGH

Forward dislocation of the carpal semilunar is a fairly common condition usually caused by an injury involving violent overextension of the hand. Backward dislocation, as shown in the accompanying illustration, is not frequent.

The patient fell from a height, June 10, 1924, and as he alighted he flung out his right arm violently to save himself.

Lateral and anteroposterior views showing backward dislocation of the carpal semilunar of the right wrist. There is disturbance of relationships of all the carpal bones and particularly eccentric rotation of the scaphoid, so that its long axis is in an anteroposterior direction rather than obliquely transverse, as is normal.

He is quite positive that the injury did not take place by reason of contact of the hand with the ground. An effort was made within a few minutes after the accident to reduce the apparent displacement, and it was thought that reduction had been effected. Six weeks later, the hand was still disabled; there was slight swelling, bluish discoloration, and a bony prominence over the back of the wrist; flexion of the hand on the arm was possible, but extension was possible only by passive movement; there was considerable pain. The condition disclosed by the roentgen ray is shown in the illustration. At this time, another effort at closed reduction was attempted unsuccessfully. After another six weeks, during which time manipulation and baking were carried out, the patient consented to excision of the bone.

The result of the operation is that the wrist is still weak; the patient can register on the hand dynamometer only to 50 (from 120 to 150 would be normal for him); he has a good range of motion in both flexion and extension, and there is no pain except in wet weather.

5084 Jenkins Arcade.

1. Eisendrath, D. N., and Wright, Frank: Anuria in Congenital Single Kidney Relieved by Ureteral Catheterization, J. A. M. A. 82:717 (March 1) 1924.

WATER PRESSURE CLEANSING FOR INSTRUMENTS OF SMALL CALIBER

HAROLD L. MORRIS, M.D., DETROIT

To simpliiy the cleaning of ureteral catheters, instillators, hypodermic needles of all types, spinal puncture needles and trocars, from the accumulation of blood cells, pus and epithelium and any other débris that may be present, a new attachment for the water faucet is adaptable. It may be used with either the screw-type or plain faucet. Sufficient hydrostatic pressure can be obtained and regulated, by means of adapters to the tips, to clean adequately any small caliber instrument.

Water faucet attachment for cleansing instruments of small caliber.

78 Adams Avenue West.

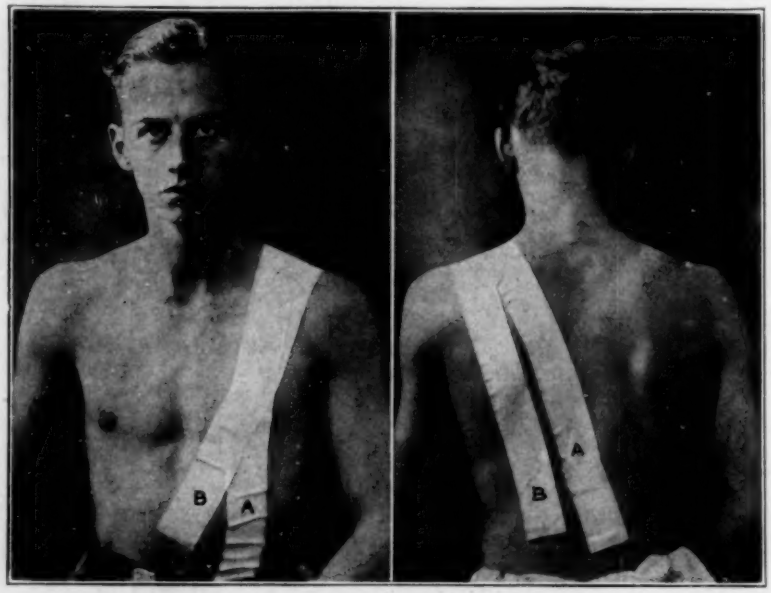
THE USE OF ADHESIVE PLASTER

GEORGE F. BEASLEY, M.D., LAFAYETTE, IND.

The result of a series of personal accidents during the last two years has taught me that we have not been using adhesive plaster, that important adjuvant of our armamentarium, in some cases, in the proper manner, but have followed along the lines laid down by our predecessors, in spite of the protestations of our suffering patients.

While crossing a street, I was struck by an automobile, fortunately going slow, the fender catching the back of my left leg. I was thrown forward and to the right; my right foot caught in the groove of the street railway track, and I went down on my right side. I immediately got up, gave my legs a tryout and found I could walk, but my foot felt

numb. I managed to walk home, a distance of four squares. The leg and foot began to swell. The foot was strapped and looked all right, but did not feel that way. This condition continued through the night. The foot felt as though it was in a vise, and that if it was opened on the top along



Method of applying adhesive plaster.

over the dorsal pedis it would feel better. This was done in the morning when the physician came, and the relief was almost instantaneous.

Later, when I began walking around the room, I had my foot strapped in the old way, to support the arch, which was weak, beginning the plaster on the outside of the foot under the sole, then over the tarsal portion and up round the leg. I found that extension and flexion soon loosened the plantar portion, and the support was lost. Then I used a 1 inch plaster, beginning over the fourth metatarsal, back of the head, bringing it under, crossing the metatarsophalangeal of the great toe, then up over the tarsal, ending below the external malleolus; another was adjusted just back and slightly overlapping, ending the same. This stopped the slipping and held snug under the arch.

Why not use one 2 inch strip? I found that the other way they could be applied more snugly, with less tendency to wrinkle, and much more comfortably. After I began walking outside, I found that my foot was weak through the arch. Then I began using an arch support consisting of an elastic band surrounding the foot like the grasp of the hand. The elasticity permits the contraction and expansion of the muscles of the plantar surface and provides a continual massage while it supports, instead of paralyzing, as the rigid supports do. After wearing one for a short while, I had no trouble.

I fell from a ladder, dropping on my chest on a wire clothes line attached to a tree; this sagged and turned me over, and I landed on the ground on my left shoulder and neck. After I had been placed in bed, examination failed to reveal any injury to the bones, but the intercostals and ligaments were twisted and torn, and any movements of the chest, such as breathing, produced severe pain. The physician attempted to immobilize the chest in the orthodox way. When I exhaled, he drew the plaster as tight as possible. At first this gave some relief, but later the distress in breathing gradually returned, and the only way to be comfortable was to lie on the injured side and take shallow breaths. This continued through the following day and night, when I awakened from a troubled sleep with the sensation that some one was sitting on my chest. I reached over with my right hand, and, catching under the ribs, I pulled up as strong as I could and was surprised at the relief. I could take a full breath with but little discomfort, and my lung cleared up. I had my wife take a strip of 2 inch plaster, long enough to extend from well below the left tenth rib, and, while I held the end, exert strong traction upward across the clavicle at the center, then down between the scapulae in the middle of the lumbar region. This gave relief, but did not seem to balance right; it needed something on the inside in front and outside in the back. I then placed another, as in the accompanying illustration, the beginning below the costals of the seventh to the ninth ribs and running up, crossing the third near the center, down over the scapula, ending near the ilium. This gave the balance, brought relief and held taut. While this was going on, I kept the lungs full of air. I found that the chest did not move and the lungs could function. The chest gave no more trouble, but my neck was on a twist that would not unwind and get straight until I discarded pillows and lay flat, which corrected it.

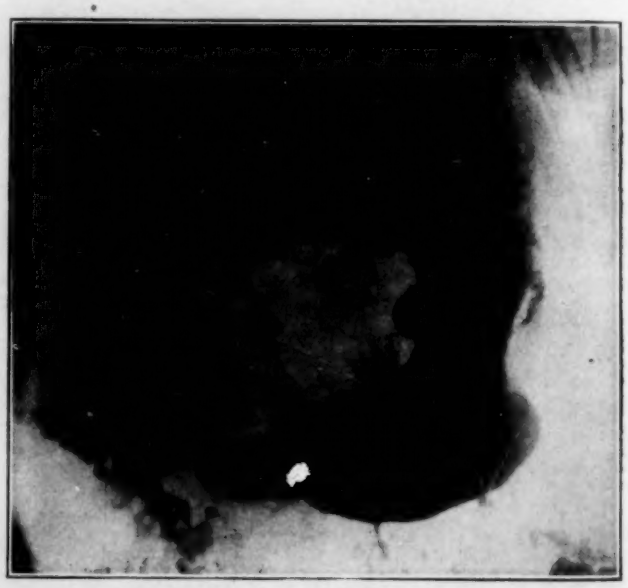
All the modern works on fractured ribs instruct us to raise the arms, then exhale, then apply the adhesive plaster, beginning at the spine, and draw forward as tight as possible, while the lungs are empty. But they have forgotten that the lung is inside and has an objection to being choked off. In conclusion, one should not try to hold the chest walls still by strapping around, but should lift them up. When adhesive plaster is applied to the fingers, it should be wound around; it can be applied over the end of a finger with safety. Finally, when one straps the foot, one should leave a space over the dorsalis pedis artery.

215 North Eighth Street.

COMBINED GASTRIC AND DUODENAL ULCER*

JACOB BUCKSTEIN, M.D., NEW YORK
Consultant in Gastro-Enterology, U. S. Veterans' Bureau; Assistant Roentgenologist, Bellevue Hospital (in chare of Gastro-Intestinal Roentgenology)

I am prompted to report this case because of its rare occurrence. In approximately 7,500 roentgenographic examinations of the gastro-intestinal tract in the last three years, there have been only three cases in which both the roentgen



Arrow 1 points to the gastric ulcer; Arrow 2 points to the duodenal ulcer.

* From the Radiographic Department, Bellevue Hospital, Dr. I. Seth Hirsch, director.

ray and surgical exploration demonstrated the presence of a combined gastric and duodenal ulcer in the same patient. The patient whose roentgenogram is shown was operated on by the late Dr. T. A. Smith, formerly director of surgery, Fourth Division, Bellevue Hospital.

[Since the writing of the foregoing report, a fourth case, diagnosed as combined gastric and duodenal ulcer roentgenographically, has been verified at operation by Dr. John McCreery, visiting surgeon to Bellevue Hospital. This makes four such cases in more than 8,000 examinations.]

1 West Eighty-Fifth Street.

Special Article

THE ART AND PRACTICE OF MEDICAL WRITING

VII. PREPARATION OF THE MANUSCRIPT *

GEORGE H. SIMMONS, M.D.
Editor and General Manager Emeritus, American Medical Association
AND
MORRIS FISHBEIN, M.D.
Editor, The Journal of the American Medical Association
CHICAGO

(Continued from page 1273)

It is unwise to ignore the fact that the general appearance of a manuscript has a psychologic effect on an editor. A manuscript that is carelessly arranged, without pagination, with sheets of various sizes, with additions written on slips pinned or clipped to the side, with corrections made without regard to neatness or to clarity, may prejudice the reader who is to pass on its merits. Slovenliness has caused the return of hundreds of manuscripts which otherwise might have been accepted.

SIZE OF THE PAPER

The standard size of paper adapted to the ordinary typewriter, linotype machine and filing case is 8 or 8½ by 11 inches. At least 90 per cent. of the manuscripts received by THE JOURNAL are typed on paper of this size. The paper used for the other 10 per cent. varies from small note size to foolscap or larger.

ORIGINAL OR CARBON COPY

The submission of a carbon, rather than of the original, copy of a paper may have a bad effect: the editor may think that the original has been sent to some other journal; he will at least consider that the journal he represents has not been treated courteously. Some editors are sensitive on this point. There are practical reasons why editors prefer good, clean copy: Each manuscript is read by at least one editor; then, in turn, by the copy editor, the linotype operator and the proof reader or copy holder. Except the editor, each of these must observe spelling, punctuation, capitalization and grammatical construction. The wise author will retain a carbon copy and thus be able to compare it with the proof, to see what, if any, liberties have been taken with his manuscript. In this manner, he may discover some faults in his writing and, indirectly, secure criticism which will aid him in the future.

TYPING THE MANUSCRIPT

A manuscript that is typed in single, that is, in close, space is objectionable; no matter how well it may be written or how carefully it may be prepared, the keen eye of the copy editor may find typographic errors, misspelled words, grammatical slips or what not that require interlineation. These and other corrections are made with difficulty on closely typed manuscripts. It is as easy to have a manuscript typed in double as in single space; it merely requires a little more paper. Liberal margins should be left at the sides to permit editing and corrections. One inch usually is sufficient. The unforgivable crime is the single-spaced carbon copy. So far as THE JOURNAL is concerned, such manuscripts are promptly returned.

NEATNESS

Illegibility, smudging or other marked defects in the preparation of a manuscript may give the impression that the research or observation embodied in the article is equally slipshod and inaccurate, and may turn the scale against its acceptance.

Manuscripts should be folded, not rolled. When they consist of too many sheets to permit of easy folding, they should be sent flat.

AUTHOR'S NAME

The name and address of the author should appear on each manuscript and on each illustration, chart and table. It is well that the title of the article, the author's name and degrees, his appointments and address be given at the beginning of the article, and that they follow as closely as possible the usual style of other articles in the publication to which his manuscript is to be sent. The various items should be separated by sufficient space to permit of the indication as to type sizes and corrections. It is well to allow a 3 inch margin at the upper edge of the first page, as printing instructions are written there by manuscript editors. Following is an example:

THE DIFFERENTIAL DIAGNOSIS OF TYPHOID FEVER *

* Read at a meeting of the Bronx Medical Society, Nov. 21, 1922.

AN ANALYSIS BASED ON THE STUDY OF SEVEN HUNDRED AND SIXTY CASES

ARTHUR M. ROBISON, M.D.
Attending Physician, Roosevelt Hospital
NEW YORK

The author's office or residence address (street and number) should be placed at the end of his article.

MECHANICAL PREPARATION OF A MANUSCRIPT

Below are some important suggestions with respect to the preparation of a manuscript:

1. Only one side of the paper should be utilized.
2. Sheets should be fastened together with pins, clips or other fasteners that can be removed easily. Manuscripts should not be permanently bound, as they are difficult to handle by editors and compositors.
3. It is preferable that tables be placed on separate sheets, and that these sheets be numbered consecutively with those containing the text. This is preferred, because tabular matter usually is handled on a different machine than is the text.
4. References to the literature and descriptive legends for illustrations may be placed on separate sheets, at the end of the manuscript, and numbered with the other pages.

* This is the seventh of a series of articles. When concluded, these papers, together with additional material, will be published in book form.

5. Pictures should not be numbered as, or pasted to, pages of the manuscript.

6. It is well to write the word "end" at the bottom of the last page of the article.

7. Corrections in a manuscript should be placed between the lines at the place where the matter should appear when the article is in type. If corrections are numerous, it is better to have the manuscript retyped; otherwise, errors may occur when the matter is being put into type.

8. Paragraphs should be indicated clearly, if not by the usual indention, then by the use of the paragraph mark, ¶.

9. The elimination of matter not required is best indicated by a horizontal line drawn through it. If, however, several paragraphs or complete pages are to be omitted, an oblique line through the entire material suffices to indicate omission.

10. If several pages are omitted from the manuscript, the pages should be either renumbered or so numbered at the top as to indicate the omission. For example, if three pages are omitted, from page 25 to page 28, the following page may be marked 25-28. If a page is inserted, say between pages 5 and 6, it may be marked "5-a," and some such notation as "page 5-a follows" made at the bottom of page 5; but it is better to renumber the pages.

11. If material is to be transposed from one portion of a manuscript to another, it should be marked off by brackets and the transposition indicated by the notation, "transpose to page —." On the latter page, the instruction as to the point at which the transposed material is to be inserted should be plain; it is perhaps best to write the words, "insert from page —," indicating the page from which the transposition is to come.

12. All corrections on manuscripts should be made with black ink. Notations made with pencil, with blue crayon or with colored inks are not desirable.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CAPROKOL.—Hexylresorcinol-S. & D.—Normal hexylresorcinol, $C_6H_3(OH)_2(C_6H_{13})$, containing not more than 5 per cent. of the intermediate product hexylylresorcinol.

Actions and Uses.—Caprokol possesses marked germicidal properties, is stated to have a phenol coefficient of 45 and to be relatively nontoxic when administered by mouth. It is excreted by the kidneys, being largely decomposed but imparting definite germicidal properties to the urine.

Experiments have been reported which showed that when normal urine inoculated with *Bacillus coli* and *Staphylococcus albus* from cases of pyelitis was treated with caprokol in the proportion of 1:10,000 the organisms were destroyed both in acid and alkaline urine. Caprokol was not found toxic to rabbits in doses of 1 to 2.5 Gm. nor in daily doses of 0.5 Gm. given over a period of three weeks. Doses of from 1 to 7 Gm. in olive oil given to normal men in repeated doses produced no important toxic effects. Administration of caprokol to normal individuals in doses of 0.25 to 0.5 Gm. three times a day caused secretion of urine which killed *Bacillus coli* and *Staphylococcus albus*, but the effects were not constant. The drug seems to offer the possibility of obtaining a continuous flow of bactericidal urine.

Caprokol is proposed for the treatment of urinary infections. The drug appears to be efficient against infections due to *Streptococcus anhemolyticus* and *Bacillus pyocyaneus*, but to be less efficient in the treatment of infections due to *Bacillus coli*.

Dosage.—From 0.15 to 0.6 Gm. three times a day. Caprokol is supplied only in the form of an olive oil solution in gelatin capsules.

Manufactured by Sharpe & Dohme, Baltimore. U. S. patent and trademark applied for.

Capsules Hexylresorcinol-S. & D., 0.15 Gm.: Each capsule contains 0.15 Gm. hexylresorcinol-S. & D. dissolved in olive oil 0.45 Gm.

Caprokol is a heavy viscous, pale yellow liquid, which solidifies on standing at room temperature. It boils at 178 C. under 8 mm. pressure; the crystals (from the distillate) melt at not lower than 58 C. It is very slightly soluble in water (1 part in 2,000 parts of water) but readily soluble in alcohol, ether, chloroform, benzene and vegetable oils. It has a slightly pungent odor, a sharp astringent taste, and produces a sense of numbness when placed on the tongue.

Add 1 Cc. of nitric acid to 1 Cc. of saturated aqueous solution of caprokol; a bright red color forms. Add 1 Cc. of bromine water to 1 Cc. of an aqueous solution of caprokol; a yellow flocculent precipitate forms; on addition of 2 Cc. of ammonia water the precipitate dissolves, leaving a canary yellow solution. Shake about 1 Gm. of caprokol with 50 Cc. of water, withdraw the aqueous layer and add three drops of ferric chloride solution; no blue color forms (*resorcinol*).

Incinerate about 2 Gm. of caprokol accurately weighed; the ash weighs not more than 0.001 Gm.

To 5 Cc. of an alcoholic solution of caprokol 1 per cent., add three drops of ferric chloride solution. The color produced should not be greater than that formed by the addition of three drops of ferric chloride solution to 5 Cc. of an alcoholic solution containing pure hexylresorcinol (made by redistilling at 178 C. under pressure of 8 mm. and melting at 57 to 60 C.) 0.95 per cent. and hexylylresorcinol 0.05 per cent.

INSULIN-STEARNS (See THE JOURNAL, June 14, 1924, p. 1937).

The following dosage forms have been accepted:

Insulin-Stearns Single Strength: 10 Cc. vials containing 10 units in each cubic centimeter.

Insulin-Stearns Double Strength: 10 Cc. vials containing 20 units in each cubic centimeter.

Insulin-Stearns Quadruple Strength: 10 Cc. vials containing 40 units in each cubic centimeter.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN.—An antitoxic serum prepared by immunizing animals against the toxin of the hemolytic streptococcus of scarlet fever. It is prepared (*a*) after the method of G. F. Dick and G. H. Dick by immunizing horses by injecting the soluble toxin of strains of hemolytic streptococci that have produced experimental scarlet fever in human beings and (*b*) by the method of A. R. Dochez in which horses are immunized against the specific scarlet fever organism by the localization of the living streptococci in a subcutaneous agar nodule which grows and stimulates the production of antitoxic and antibacterial substances. Certain modifications of these methods are employed by some producers.

Scarlet fever streptococcus antitoxin is standardized so that 1 Cc. of the final product will neutralize and hold in neutralization for forty-eight hours not less than 1,000 skin test doses of control toxin supplied by the U. S. Hygienic Laboratory. Each package is required to bear an expiration date, after which it should not be used.

Actions and Uses.—During recent years much evidence has accumulated to show that the specific organism of scarlet fever (*Streptococcus hemolyticus-scarlatinae*) has been determined and that the administration of a serum containing the antitoxin produced by this organism favorably affects the course of scarlet fever.

Eli Lilly & Company, Indianapolis.

Scarlet Fever Streptococcus Antitoxin-Lilly (Unconcentrated).—It is prepared by the Dochez method. Each cubic centimeter neutralizes at least 10,000 skin test doses of scarlet fever toxin.

Marketed in packages of one vial containing 20 Cc.

Scarlet Fever Streptococcus Antitoxin-Lilly (Refined and Concentrated).—It is prepared by the Dochez method. The serum is concentrated by the method employed in concentrating diphtheria antitoxin. Each cubic centimeter neutralizes at least 20,000 skin test doses of scarlet fever toxin.

Marketed in packages of one vial containing 10 Cc.

United States Standard Products Co., Woodworth, Wis.

Scarlet Fever Streptococcus Antitoxin-U. S. S. P.—It is prepared by the method of Drs. Dick. The serum is concentrated by a modification of the Banzhaf method. The product contains not more than 20 per cent. of solids and is preserved with 0.4 per cent. of cresol. Each cubic centimeter neutralizes at least 1,000 skin test doses of scarlet fever toxin.

Marketed in packages of one syringe containing 10 Cc. (prophylactic dose) and in packages of one vial containing 20 Cc. (therapeutic dose).

STATE BOARD STATISTICS FOR 1924

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1340 to 1347 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1924. All state boards sent in reports, and the statistics are complete.

Tables A and B, when read from left to right, show for each medical college named (*a*) the number of graduates appearing for examination in each state; (*b*) whether they passed or failed; (*c*) the total number examined during the year; (*d*) the number who passed; (*e*) the number who failed; (*f*) the percentage of failures, and (*g*) the number of states in which graduates of that school appeared for examination. Read from above downward, they give the results by states, showing (*h*) the number registered and (*i*) the number rejected from each college; (*j*) the total numbers examined, registered and rejected, and (*k*) the percentage of rejections. The majority of graduates take the examination in the state in which the college is located, as shown by the dark diagonal zone of figures passing from the upper left to the lower right corner of each table. The marginal numbers enable one to follow readily the line for any college.

Graduates of All Years Examined in 1924

Table A shows the results for all candidates who took examinations in 1924, regardless of the years in which they graduated. This shows that altogether 5,350 candidates were examined last year, as compared with 4,698 in 1923, 3,993 in 1922, 4,807 in 1921 and 4,787 in 1920. This year shows an increase of 652 over last year, and an increase of 1,357 over 1922. Since 1906 and until 1919, there was the expected decrease in the totals examined, owing chiefly to the general reorganization of medical education and, prior to 1919, in the decreasing numbers of students and graduates. Since 1918 there has been a constant increase, except in 1922, when the decrease was due to the small number, 2,529—the war class—who graduated in that year. Of the 5,350 examined in 1924, 11.9 per cent. failed, as compared with 14.9 in 1923, 12.3 in 1922, and 12.4 in 1921.

There were seventy-one medical colleges in the United States granting degrees in 1924, which had graduates examined. This is a decrease of eighty-two since 1905, when graduates from 153 medical colleges were examined. The statistics covering schools that have ceased to exist are included in the line for "miscellaneous colleges."

Graduates of Canadian medical schools were examined last year in twenty-six states. Last year 212 were examined, as compared with 140 in 1923, and eighty-two in 1922. The largest number, thirty-eight, were examined in New York, the next largest number being thirty-seven examined in Michigan. The figures for each college are given so as to show the successes and failures of its graduates at the examinations. Of the 212 candidates examined, fourteen, or 6.6 per cent., failed.

The number of foreign physicians seeking licensure in the United States has been steadily increasing since the World War. There were 591 in 1924, exclusive of those from Canada, as compared with 371 in 1923, 186 in 1922, 176 in 1921, 86 in 1920 and 67 in 1919. Of the 591 examined in 1924, 231, or 39.1 per cent., failed. This year, foreign graduates were examined in thirty-four states, the largest number, 208 being examined in New York, of whom 111, or 53.3 per cent., failed. From all foreign countries, including Canada, 803 candidates were examined, of whom 558 passed and 245, or 30.5 per cent., failed.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, the reader must keep in mind (*a*) the number of graduates examined; (*b*) the number of states in which a school's graduates were examined; (*c*) the character of the board making the examination and the methods employed. Some boards refuse to examine graduates of inferior medical colleges, while others (Table I and footnotes) not only examine graduates of medical colleges but also admit osteopaths to the physicians' and surgeons' examination. Some boards hold careful examinations, which include practical laboratory and clinical tests, or they mark the papers more severely, while others are more lenient. It is particularly important, in forming conclusions based on these statistics, to note for each college the states in which its graduates *are not admitted to examinations*, information which is set forth in Table D. Very few state boards now admit graduates of low-grade medical schools to their examinations.

Undergraduates and Osteopaths Examined as Physicians During 1924

For the last four years, the few undergraduates examined have been accidental or exceptional instances. In 1924, nine undergraduates were examined. One undergraduate each was licensed in Arkansas, Colorado, Tennessee and Washington, while one failed in California, and two each failed in Illinois and Massachusetts. In 1906, by contrast, there were 703 undergraduates examined, and 342 were licensed. The door has been practically closed, therefore, against the admission to practice of those whose medical training is known to be incomplete. At present, however, several boards register as physicians and surgeons, by examination or by reciprocity, graduates of osteopathic colleges, which, if measured by the same standards for medical schools, could be graded only low in Class C. In 1924, twenty-five osteopaths were examined as physicians in three states, and of these twenty-four were licensed, fifteen in Massachusetts, seven in Colorado and two in Texas. In two of these state—Colorado and Texas—the boards refuse to admit graduates of Class C medical schools to their examinations,[1] but, nevertheless, examine graduates of osteopathic colleges which are nothing more than low type medical schools.

Recent Graduates Examined During 1924

Table B gives the results for graduates of 1920 to 1924, inclusive, who were examined during 1924. This table deals with recent graduates, and is the fairest basis for comparison between colleges. Of all candidates examined in 1924, 4,490, or 83.9 per cent., were recent graduates, and of this number 7.3 per cent. failed, as compared with 11.9 per cent. for all candidates.

Old Practitioners Examined During 1924

Table C is arranged so as to show in comparison the results for graduates of all years (first column), for recent graduates (second column), for graduates of 1919 and previous years (third column), and for graduates of 1924 (fourth column). Of the graduates of 1919 and previous years—"old practitioners"—826 were examined, and of this number 301, or 36.5 per cent., failed, as compared with 7.3 per cent. of failures for recent graduates. The number of these candidates is diminishing[2] as state licensing boards extend the provision for reciprocity, or where a physician's qualifications are otherwise satisfactory, the endorsement, without further examination, of a license granted by another state. As a rule, states that have limited or no reciprocal

(CONTINUED ON PAGE 1347)

1. See Table D on page 1348.
2. See Table 2 on page 1349.

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F	22 Minnesota P	22 Minnesota F
	ARKANSAS																																												
1	University of Arkansas Medical Department					11	1																																					
	CALIFORNIA																																											
2	College of Medical Evangelists			1	0			60	3									1	0																					1	0	1	0		
3	Stanford University School of Medicine							24	0																																			1	0
4	University of California Medical School							43	0																																				
	COLORADO																																											
5	University of Colorado School of Medicine							3	0	17	0																																		
	CONNECTICUT																																											
6	Yale University School of Medicine											21	0																							1	0			1	0				
	DISTRICT OF COLUMBIA																																											
7	Georgetown University School of Medicine											1	1			15	1	1	0					1	0											1	0	3	0				
8	George Washington University Medical School											1	1			22	0	1	0															1	0			1	0				
9	Howard University School of Medicine							0	1							18	5							0	2											3	1					2	6
	GEORGIA																																											
10	Emory University School of Medicine	11	0															42	1	46	0			1	0									1	0					1	0		
11	University of Georgia Medical Department															1	0	6	1	30	0																						
	ILLINOIS																																											
12	Chicago Medical School									0	1													16	13															1	1			
13	General Medical College							0	1															11	1	8	0													1	0		
14	Loyola University School of Medicine							1	0															26	4					1	0	1	0					1	0			1	0
15	Northwestern University Medical School							4	0	1	0							3	0					59	3			4	0	2	0	1	0	2	0			1	0	3	0		
16	Rush Medical College (University of Chicago)			1	0			20	2	1	0							1	0					53	1			1	0	1	0							1	0	1	0	3	0
17	University of Illinois College of Medicine							4	2									0	1					78	0															3	0	1	0
	INDIANA																																											
18	Indiana University School of Medicine							1	0																	61	0													1	0			1	0
	IOWA																																											
19	State University of Iowa College of Medicine							2	0																			47	0											1	0		
	KANSAS																																											
20	University of Kansas School of Medicine											1	0																	22	0												
	KENTUCKY																																											
21	University of Louisville School of Medicine					2	0	1	1									3	4									2	0			42	0										
	LOUISIANA																																											
22	Tulane University of Louisiana School of Medicine	4	0	1	0					1	0	3	0					2	0			1	0											54	0								
	MARYLAND																																											
23	Johns Hopkins University Medical Department	1	0					3	0			2	0			2	0	2	0					1	0							1	0			1	0	37	0	2	0	2	0
24	Univ. of Md. School of Med. and Coll. of P. & S.											2	0					3	0																			31	0				
	MASSACHUSETTS																																											
25	Boston University School of Medicine							1	2			2	1					0	1	1	0															5	0			18	1				
26	College of Physicians and Surgeons, Boston													0	2	0	1																							5	3			
27	Harvard University Medical School							2	1			4	0			1	0	2	0					1	0											6	0			33	0	2	0	1	0
28	Middlesex College of Medicine and Surgery.—N																	0	1																					21	14				
29	Tufts College Medical School											12	3					1	0					3	0			1	0							16	0	1	0	86	3				
	MICHIGAN																																											
30	Detroit College of Medicine and Surgery							3	0																															1	0	29	0		
31	University of Michigan Medical School							2	1			1	0			1	0	2	0							1	0															128	0		
	MINNESOTA																																											
32	University of Minnesota Medical School							5	1			1	0					1	0																									82	0
	MISSOURI																																											
33	Kansas City College of Medicine and Surgery.—N									0	1																																	
34	Kansas City University of Phys. and Surgs.—N									3	3																																	
35	St. Louis College of Physicians and Surgeons							0	3	2	6					0	3							1	1							1	0							4	21			
36	St. Louis University School of Medicine							1	1									1	0					6	0			1	0	2	0			1	0								
37	Washington University School of Medicine					1	0	6	0									1	0			1	0	6	0	1	0	1	0	1	0												
	NEBRASKA																																											
38	Creighton University College of Medicine							1	0																																			
39	University of Nebraska College of Medicine			1	0			5	0			1	0					0	1			1	0															1	0				
	NEW YORK																																											
40	Albany Medical College							0	1																																			
41	Columbia University College of Phys. and Surgs.											3	0			1	0	6	0					2	0											1	0			4	0			1	0
42	Cornell University Medical College											1	0					2	0															2	0					2	0				
43	Long Island College Hospital											2	1					0	1																									
44	New York Homeo. Med. Col. & Flower Hosp.—H											1	0					1	0																					1	0				
45	Syracuse University College of Medicine																							1	0					1	0									1	0			
46	University and Bellevue Hospital Medical College											2	1					1	0	1	0			1	0																			
47	University of Buffalo Medical Department							0	1																															1	0				
	OHIO																																											
48	Eclectic Medical College.—E																	3	0					1	0							3	0										
49	Ohio State University College of Medicine																	2	0																									
50	University of Cincinnati College of Medicine							1	1			1	0					1	0																							1	0		
51	Western Reserve University School of Medicine							1	0																																			
	OKLAHOMA																																											
52	University of Oklahoma School of Medicine			1	0																			1	0					1	0	1	0									
	OREGON																																											
53	University of Oregon Medical School							7	0	1	0													1	0																			1	0
	PENNSYLVANIA																																											
54	Hahnemann Medical College and Hospital.—H							1	1					1	0			2	0																									
55	Jefferson Medical College							0	1			4	1	1	0			4	1			1	0													1	0	3	0	7	1	4	0		
56	Temple University School of Medicine													2	0			1	0							1	0																	
57	University of Pennsylvania School of Medicine	1	0					2	0			1	0	1	0	1	0	5	0							2	0			1	0	1	0			1	0	1	0	2	0	1	0
58	University of Pittsburgh School of Medicine											1	0					1	0																									
59	Woman's Medical College of Pennsylvania							1	0			1	0	1	0																					4	0			2	0			
	SOUTH CAROLINA																																											
60	Medical College of the State of South Carolina							2	0									6	0																									
	TENNESSEE																																											
61	Meharry Medical College					1	0			0	1							1	0	2	0			10	13					6	0			5	0			0	1	0	1	3	0
62	University of Tennessee College of Medicine	1	0			2	0	1	0									2	0											2	0									1	0	1	0
63	Vanderbilt University School of Medicine	3	0			2	0	1	2									7	2					1	1									1	0					2	1		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. In	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F					
																												12	11	1	8.3	1	1
													1 0					1 0										1 0	70	67	3	4.3	8	2
																												25	25	0	0.0	2	3
																											1 0	44	44	0	0.0	2	4
														1 0			1 0						1 0					23	23	0	0.0	5	5
								10 2			2 0					1 0												38	36	2	5.3	6	6
	1 0					3 0		14 0			1 0			2 0							1 0						1 0	48	46	2	4.2	14	7
								3 1	1 0		1 0			3 0										1 0		2 0	41	39	2	4.9	11	8
						1 0		4 2	1 0					5 0								1 0		1 0				45	34	11	24.4	10	9
									2 0															1 0				106	105	1	0.9	8	10
																2 0												40	39	1	2.5	4	11
								7 1																				32	17	15	46.9	3	12
													0 1												14 3		0 1	48	41	7	14.6	7	13
1 0	4 0	1 0				1 0		3 1				1 0	1 0				2 0	2 0					1 0				1 0	102	98	4	3.9	21	15
	3 0							0 1		1 0	2 0		2 1	1 0			2 0								10 0		6 0	115	110	5	4.3	19	16
	3 0	1 0						3 1			1 0												1 0		5 0			104	100	4	3.8	11	17
											1 0														1 0		0 1	67	66	1	1.5	7	18
		1 0						1 1					1 0				2 0			1 0							1 0	58	57	1	1.7	9	19
	5 0																											28	28	0	0.0	3	20
																			1 0			1 0		3 0			2 0	62	57	5	8.1	9	21
8 1	1 0							6 2	5 0					1 0					3 0									93	90	3	3.2	13	22
								5 1	1 0				1 0	2 0			1 0	1 0					1 0	2 0				74	73	1	1.4	20	23
	1 0					1 0		20 4	15 0		1 0			1 1		1 0			1 0			1 0		4 0			1 0	88	83	5	5.7	14	24
					1 0	1 0		19 2			1 0				1 0				2 0						1 0			60	53	7	11.7	13	25
	1 0	1 0				2 0		16 1			3 0			3 0	2 0				1 0		2 0	1 0		2 0		1 0		11	5	6	54.5	3	26
		1 0				1 0		26 4							5 1									2 0				89	87	2	2.2	21	27
																												36	21	15	41.7	2	28
		1 0						11 1			1 0			3 0	1 0									1 0		2 0		166	155	11	6.6	12	29
								4 0						2 0										2 0				34	34	0	0.0	4	30
																												156	154	2	1.3	12	31
	0 4			1 0																								98	97	1	1.0	7	32
	0 4			1 0				0 1			2 0		1 1													1 0		5	0	5	100.0	2	33
	96 0																											8	5	3	37.5	3	34
3 0	53 0	3 0						1 0	3 0		1 0						1 0							1 0	4 0	0 1		109	106	3	2.8	13	36
	5 0	2 0	32 0																	4 0					2 2			90	88	2	2.2	16	37
	2 0	1 0	50 0					2 0						1 0			2 0									1 0	3 1	44	44	0	0.0	7	38
																	2 0											73	71	2	2.7	14	39
1 0				1 0		3 0		17 0																				18	17	1	5.6	2	40
						1 0		79 5					1 0	1 0		1 0		1 0	1 0						1 0		1 0	113	108	5	4.4	17	41
				1 0				44 2																				55	53	2	3.6	7	42
						1 0		47 4							1 0													57	51	6	10.5	5	43
								30 0							1 0													35	35	0	0.0	6	44
	1 0							35 0	2 0														1 0					41	41	0	0.0	5	45
								100 2															2 0					111	108	3	2.7	7	46
								63 1						1 0	1 0		1 0											69	67	2	2.9	6	47
	0 1							9 2			10 0			2 0														37	34	3	8.1	7	48
		1 0							2 0		52 0																	56	56	0	0.0	4	49
	2 0										63 0			1 0				2 0								1 0		77	76	1	1.3	10	50
								1 0			40 0		1 0											3 0				45	45	0	0.0	5	51
	1 0							1 1				13 0																20	19	1	5.0	7	52
													28 2							1 0			3 0					44	42	2	4 5	7	53
	1 0					6 0		5 1					1 0	23 0														42	40	2	4.8	8	54
	3 0					6 0		15 4	16 0		11 0		1 0	71 0	1 0	1 0	1 0		1 0	1 0				9 0			2 0	166	158	8	4.8	22	55
3 0											1 0			24 0														29	29	0	0.0	5	56
						7 0		7 2	21 0		3 0			79 0	1 0					1 0		1 0		2 0	3 0		4 1	156	153	3	1.9	25	57
								1 0			1 0			37 0														41	41	0	0.0	5	58
						1 0		4 3			1 0			5 2								1 0						26	21	5	19.2	10	59
								1 0	2 0		1 0					27 0								1 0				40	40	0	0.0	7	60
1 0	1 5								4 0		7 7			0 1		0 1		20 0	2 0			2 9		4 0				99	69	30	30.3	20	61
5 0								3 0	1 1					1 0				39 0										57	56	1	1.8	12	62
	1 0							3 2	1 0					1 0		1 0		47 0						2 0				81	73	8	9.9	14	63
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					

TABLE A—PHYSICIANS EXAMINED B

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	TEXAS																																											
64	Baylor University College of Medicine																							1	0																				
65	University of Texas School of Medicine							1	0																									1	0										
	VERMONT																																											
66	University of Vermont College of Medicine											2	0					1	1															1	0					2	0				
	VIRGINIA																																											
67	Medical College of Virginia											1	0					0	1													1	0	1	0			1	0	1	0				
68	University of Virginia Department of Medicine											1	0			3	0	1	0					1	0																				
	WISCONSIN																																											
69	Marquette University School of Medicine																																											
	PHILIPPINE ISLANDS																																											
70	University of the Philippines, Manila																																											
71	University of St. Thomas, Manila																																											
	CANADA																																											
72	Dalhousie University Faculty of Medicine							0	1																													1	0	2	0				
73	Laval University Faculty of Medicine							0	1																											1	0								
74	McGill University Faculty of Medicine							5	1			3	1											2	0					2	0			10	0	4	0	5	1	8	0	2	0		
75	Queen's University Faculty of Medicine							1	0			1	1					1	0			1	0	1	0															1	0				
76	University of Manitoba Faculty of Medicine							3	0															2	0																	1	0				
77	University of Montreal Medical Faculty											0	1																																
78	University of Toronto Faculty of Medicine	1	0					4	0	1	0							2	0					2	0	1	0									2	0	1	0	1	0	26	0	1	0
79	University of Western Ontario Medical School																							0	1																	2	0				
80	Foreign Colleges	1	0					25	13	2	1	6	7	2	1	2	1	3	1					60	32	1	0	4	0	1	0	1	0			6	0	9	1	20	18	6	2	13	0
81	Miscellaneous Medical Colleges	2	1	1	0	12	0	2	37	3	2	0	3			1	1	21	21					4	7					3	0	1	0	3	1	2	0	2	0	6	0			1	0
82	Undergraduates and Osteopaths					1	0	0	1	8	0													0	2															15	2				
83	Totals by States	26		6		33		330		55		105		9		81		186		80		5		445		78		59		47		54		74		59		100		328		226		15	
84	Totals — Examined — Passed	25		6		32		250		40		86		8		68		147		80		5		364		78		59		47		54		73		59		96		260		224		15	
85	Totals — Examined — Failed	1		0		1		280		15		22		1		13		39		0		0		81		0		0		0		0		1		0		4		68		2		0	
86	Percentage of Failures	3.8		0.0		3.0		24.2		27.3		21.0		11.1		16.0		21.0		0.0		0.0		18.2		0.0		0.0		0.0		0.0		1.4		0.0		4.0		20.7		0.9		0.0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

TABLE B—GRADUATES OF 1920 TO 1924, INCLUSIVE

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ARKANSAS																																											
1	University of Arkansas Medical Department					10	0																																				
	CALIFORNIA																																										
2	College of Medical Evangelists			1	0			60	3									1	0																					1	0	1	0		
3	Stanford University School of Medicine							24	0																																		1	0
4	University of California Medical School							43	0																																				
	COLORADO																																											
5	University of Colorado School of Medicine							3	0	17	0																																		
	CONNECTICUT																																											
6	Yale University School of Medicine											21	0																									1	0			1	0				
	DISTRICT OF COLUMBIA																																											
7	Georgetown University School of Medicine											1	1			15	1	1	0																			1	0	3	0	1	0		
8	George Washington University Medical School											1	1			21	0																							1	0				
9	Howard University School of Medicine							0	1							18	4							0	1													3	1						
	GEORGIA																																											
10	Emory University School of Medicine	11	0															37	0	46	0			1	0									1	0					1	0				
11	University of Georgia Medical Department																	5	0	30	0																								
	ILLINOIS																																											
12	Chicago Medical School									0	1													15	13															1	1				
13	General Medical College							0	1															11	1	8	0															1	0		
14	Loyola University School of Medicine							1	0															35	4					1	0	1	0					0	1						
15	Northwestern University Medical School							3	0	1	0							2	0					57	3			4	0	2	0	1	0	2	0					1	0	3	0		
16	Rush Medical College (University of Chicago)			1	0			19	0	1	0							1	0					53	1			1	0	1	0											1	0	3	0
17	University of Illinois College of Medicine							2	0															77	0																			3	0	1	0
	INDIANA																																											
18	Indiana University School of Medicine																									61	0																	1	0		
	IOWA																																											
19	State University of Iowa College of Medicine							2	0																			47	0																	
	KANSAS																																											
20	University of Kansas School of Medicine											1	0																	22	0													5	0		
	KENTUCKY																																											
21	University of Louisville School of Medicine																															42	0												
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
										1 0									16 0									18	18	0	0.0	4	64
	1 0							2 1											66 0									72	71	1	1.4	5	65
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																									40 2			42	40	2	4.8	1	69
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21	198	19	88	7	3	76	0	965	90	3	277	15	48	313	23	36	22	116	99	8	34	77	31	65	111	4	100	5350	....	....	....	....	83
20	182	18	85	7	3	66	0	788	89	3	255	15	41	302	20	34	21	116	98	8	34	76	30	61	102	3	63	....	4713	....	....	....	84
1	16	1	3	0	0	10	0	177	1	0	22	0	7	11	3	2	1	0	1	0	0	1	1	4	9	1	37	....	....	637	....	....	85
4.8	8.1	5.3	3.4	0.0	0.0	13.2	0.0	18.3	1.1	0.0	11.6	0.0	14.6	3.5	13.0	5.6	4.5	0.0	1.0	0.0	0.0	1.3	3.2	6.2	8.1	25.0	37.0	....	....	....	11.9	....	86
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

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Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
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																											1 0	44	44	0	0.0	2	4
														1 0									1 0					22	22	0	0.0	5	5
								9 0			2 0					1 0												35	35	0	0.0	6	6
	1 0					3 0		14 0			1 0			2 0							1 0						1 0	47	45	2	4.3	13	7
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								7 1																	14 3		0 1	31	16	15	48.4	3	12
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1 0	4 0	1 0				1 0		3 1					1 0				1 0	2 0					1 0				1 0	46	40	6	13.0	7	14
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	5 0																											53	52	1	1.9	5	19
																												28	28	0	0.0	3	20
																			1 0			1 0		3 0				49	49	0	0.0	5	21
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

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		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	LOUISIANA																																											
22	Tulane University of Louisiana School of Medicine	4	0	1	0	..	..	..	..	1	0	2	0	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	54	0	..	..	..	..	..	..	..	..	..	..
	MARYLAND																																											
23	Johns Hopkins University Medical Department	1	0	..	..	..	..	3	0	..	..	..	..	..	..	2	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	1	0	37	0	1	0	2	0	2	0
24	Univ. of Md. School of Med. and Coll. of P. & S.	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	0	..	..	..	..	..	..
	MASSACHUSETTS																																											
25	Boston University School of Medicine	..	..	..	..	..	..	1	0	..	..	2	1	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	0	..	..	18	1	..	..	..	..
26	College of Physicians and Surgeons, Boston	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	..	..	..
27	Harvard University Medical School	..	..	..	..	..	..	1	0	..	..	4	0	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	6	0	..	..	29	0	2	0	1	0
28	Middlesex College of Medicine and Surgery.—N	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	14	..	..	..	..
29	Tufts College Medical School	..	..	..	..	..	..	..	..	..	..	10	3	..	..	..	..	..	..	..	..	..	..	2	0	..	..	1	0	..	..	..	..	..	..	15	0	1	0	86	3	..	..	..	..
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30	Detroit College of Medicine and Surgery	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29	0	..	..
31	University of Michigan Medical School	..	..	..	..	..	..	2	0	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	128	0	..	..
	MINNESOTA																																											
32	University of Minnesota Medical School	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	82	0	..	..
	MISSOURI																																											
33	Kansas City College of Medicine and Surgery.—N	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	Kansas City University of Phys. and Surgs.—N	..	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35	St. Louis College of Physicians and Surgeons	..	..	..	..	..	..	0	1	2	6	..	..	..	..	0	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	4	21	..	..	..	..
36	St. Louis University School of Medicine	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	5	0	..	..	1	0	2	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..
37	Washington University School of Medicine	..	..	..	..	1	0	6	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	6	0	1	0	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	NEBRASKA																																											
38	Creighton University College of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..
39	University of Nebraska College of Medicine	..	..	1	0	..	..	4	0	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..
	NEW YORK																																											
40	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41	Columbia University College of Phys. and Surgs	..	..	..	..	..	..	..	..	..	..	3	0	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	4	0	..	..	1	0
42	Cornell University Medical College	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..
43	Long Island College Hospital	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
44	New York Homeo. Med. Col. & Flower Hosp.—H	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..
45	Syracuse University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
46	University and Bellevue Hospital Medical College	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
47	University of Buffalo Medical Department	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	OHIO																																											
48	Eclectic Medical College.—E	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..
49	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
50	University of Cincinnati College of Medicine	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
51	Western Reserve University School of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	OKLAHOMA																																											
52	University of Oklahoma School of Medicine	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..
	OREGON																																											
53	University of Oregon Medical School	..	..	..	..	..	..	6	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
	PENNSYLVANIA																																											
54	Hahnemann Medical College and Hospital.—H	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
55	Jefferson Medical College	..	..	..	..	..	..	..	..	..	..	3	1	1	0	..	..	4	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	3	0	6	1	4	0	..	..	..	..
56	Temple University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
57	University of Pennsylvania School of Medicine	..	..	..	..	..	..	2	0	..	..	1	0	1	0	1	0	2	0	..	..	..	..	2	0	..	..	1	0	1	0	..	..	..	..	1	0	2	0	1	0	1	0	..	..
58	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
59	Woman's Medical College of Pennsylvania	..	..	..	..	..	..	1	0	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	2	0	..	..	..	..
	SOUTH CAROLINA																																											
60	Medical College of the State of South Carolina	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	6	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	TENNESSEE																																											
61	Meharry Medical College	..	..	..	..	1	0	..	..	0	1	..	..	..	..	..	..	1	0	1	0	..	..	4	6	..	..	..	..	6	0	..	..	5	0	..	..	0	1	0	1	1	0	..	..
62	University of Tennessee College of Medicine	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
63	Vanderbilt University School of Medicine	3	0	..	..	1	0	1	1	..	..	..	..	..	..	..	..	2	0	..	..	..	..	0	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	2	1	..	..	..	..
	TEXAS																																											
64	Baylor University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
65	University of Texas School of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
	VERMONT																																											
66	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..
	VIRGINIA																																											
67	Medical College of Virginia	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	1	0	1	0	..	..	..	..
68	University of Virginia Department of Medicine	..	..	..	..	..	..	..	..	..	..	1	0	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	WISCONSIN																																											
69	Marquette University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	PHILIPPINE ISLANDS																																											
70	University of the Philippines, Manila	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
71	University of St. Thomas, Manila	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	CANADA																																											
72	Dalhousie University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..
73	Laval University Faculty of Medicine	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..
74	McGill University Faculty of Medicine	..	..	..	..	..	..	5	0	..	..	2	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	2	0	..	..	..	..	9	0	4	0	5	0	4	0	2	0
75	Queen's University Faculty of Medicine	..	..	..	..	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
76	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
77	University of Montreal Medical Faculty	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	2	1	..	..	..	..
78	University of Toronto Faculty of Medicine	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	1	0	1	0	21	0	..	..
79	University of Western Ontario Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..
80	Foreign Colleges	..	..	..	..	..	..	10	4	2	0	2	5	1	0	2	1	2	0	..	..	..	..	22	13	..	..	4	0	1	0	..	..	..	..	2	0	6	1	5	5	2	0	7	0
81	Miscellaneous Medical Colleges	..	..	1	0	..	..	1	2	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..
82	Undergraduates and Osteopaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
83	Totals by States	20		5		13		235		40		81		7		75		73		79		3		341		77		59		41		52		69		47		95		257		210		106	
84	Totals — Examined — Passed	20		5		13		219		29		67		7		65		73		79		3		298		77		59		41		52		69		47		91		205		210		106	
85	Totals — Examined — Failed	0		0		0		16		11		14		0		10		0		0		0		43		0		0		0		0		0		0		4		52		0		0	
86	Percentage of Failures	0.0		0.0		0.0		6.8		27.5		17.3		0.0		13.3		0.0		0.0		0.0		12.6		0.0		0.0		0.0		0.0		0.0		0.0		4.2		20.2		0.0		0.0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
8 1	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	6 2	5 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	91	88	3	3.3	12	22
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	6 0	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	1 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	63	63	0	0.0	16	23
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	19 3	15 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	4 0	.. ..	.. ..	1 0	78	75	3	3.8	10	24
.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	18 2	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	56	51	4	7.3	11	25
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	16 1	.. ..	.. ..	2 0	.. ..	.. ..	3 0	2 0	.. ..	.. ..	.. ..	1 0	.. ..	2 0	1 0	.. ..	.. ..	2 0	.. ..	.. ..	78	77	1	1.3	18	27
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	25 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	156	145	11	7.1	10	29
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	9 0	.. ..	.. ..	1 0	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	2 0	.. ..	150	150	0	0.0	11	31
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	95	94	1	1.1	6	32
.. ..	0 4	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	5	0	5	100.0	2	33
.. ..	0 4	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7	5	2	28.6	3	34
.. ..	86 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	4 0	0 1	.. ..	43	8	35	81.4	7	35
3 0	52 0	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	3 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4 0	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	108	105	2	1.9	12	36
.. ..	4 0	2 0	32 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	87	85	2	2.3	15	37
.. ..	2 0	1 0	50 0	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	3 1	43	43	0	0.0	7	38
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	17 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	69	68	1	1.4	12	39
1 0	.. ..	.. ..	.. ..	1 0	.. ..	3 0	.. ..	79 2	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	.. ..	.. ..	1 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	103	101	2	1.9	16	41
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	44 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	51	49	2	3.9	5	42
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	47 3	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	52	49	3	5.8	2	43
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	29 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	30	30	0	0.0	2	44
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	35 0	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	39	39	0	0.0	4	45
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	100 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	106	104	2	1.9	5	46
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	63 1	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	66	65	1	1.5	3	47
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	9 2	.. ..	.. ..	16 0	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	32	30	2	6.2	4	48
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	52 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	56	56	0	0.0	4	49
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	63 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	75	75	0	0.0	9	50
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	40 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	43	43	0	0.0	4	51
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	13 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	19	18	1	5.3	6	52
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	28 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	43	41	2	4.7	7	53
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	6 0	.. ..	5 1	.. ..	.. ..	.. ..	.. ..	1 0	23 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	39	38	1	2.6	7	54
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	6 0	.. ..	12 3	10 0	.. ..	11 0	.. ..	1 0	69 0	1 0	1 0	1 0	1 0	.. ..	1 0	.. ..	.. ..	.. ..	9 0	.. ..	.. ..	2 0	153	148	5	3.3	21	55
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	24 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	27	27	0	0.0	3	56
3 0	.. ..	.. ..	.. ..	.. ..	.. ..	7 0	.. ..	6 2	21 0	.. ..	3 0	.. ..	.. ..	78 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	2 0	2 0	.. ..	4 1	147	144	3	2.1	23	57
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	1 0	.. ..	.. ..	37 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	39	39	0	0.0	3	58
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	4 3	.. ..	.. ..	1 0	.. ..	.. ..	5 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	25	20	5	20.0	10	59
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	2 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	27 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	39	39	0	0.0	6	60
1 0	1 4	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	4 0	.. ..	6 7	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	20 0	2 0	.. ..	.. ..	2 0	.. ..	4 0	.. ..	.. ..	80	59	21	26.2	19	61
2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	1 1	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	39 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	51	50	1	2.0	8	62
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 2	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	47 0	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	70	65	5	7.1	13	63
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	16 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	18	18	0	0.0	3	64
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	66 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	71	71	0	0.0	5	65
.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	10 0	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	28 0	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	46	46	0	0.0	8	66
.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	.. ..	10 2	17 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	54 0	.. ..	13 0	.. ..	.. ..	1 0	103	101	2	1.9	11	67
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	12 0	.. ..	2 0	1 0	.. ..	.. ..	25	25	0	0.0	2	68
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	40 2	.. ..	.. ..	42	40	2	4.8	1	69
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	10 0	10	10	0	0.0	1	70
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	18 27	45	18	27	60.0	1	71
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	5	3	2	40.0	2	72
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2	1	1	50.0	2	73
.. ..	.. ..	3 0	.. ..	.. ..	1 0	2 0	.. ..	15 0	.. ..	.. ..	1 0	.. ..	.. ..	2 0	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	5 0	.. ..	.. ..	.. ..	.. ..	66	65	1	1.5	18	74
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	8 0	.. ..	.. ..	.. ..	.. ..	1 0	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	17	17	0	0.0	0	75
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	6	6	0	4.4	4	76
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	7 1	.. ..	.. ..	7 0	.. ..	.. ..	10 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	54	53	1	1.9	10	78
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	5	5	0	0.0	3	79
.. ..	3 0	1 0	2 3	1 0	.. ..	12 3	.. ..	54 46	.. ..	.. ..	20 9	.. ..	.. ..	1 1	1 0	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	.. ..	1 1	2 0	4 0	.. ..	1 2	208	174	94	35.1	28	80
.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	8	6	2	25.0	6	81
																																...	82
20	187	13	87	4	2	53	0	813	80	2	255	14	39	286	10	35	10	113	96	8	32	73	18	54	97	3	92	4490	....	....	....	...	83
19	175	13	84	4	2	50	0	719	88	2	239	14	36	283	9	34	10	113	96	8	32	73	17	54	90	2	59	....	4160	....	....	...	84
1	12	0	3	0	0	3	0	94	1	0	16	0	3	3	1	1	0	0	0	0	0	0	1	0	7	1	33	....	....	330	....	...	85
5.0	6.4	0.0	3.4	0.0	0.0	5.7	0.0	11.6	1.1	0.0	6.3	0.0	7.7	1.0	10.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	7.2	33.3	35.9	....	....	....	7.3	...	86
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

	NAME OF COLLEGE	Graduates of All Years					Graduates of 1920-1924					Graduates of 1919 and Previous					Graduates of 1924					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ARKANSAS																					
1	University of Arkansas Medical Department	12	11	1	8.3	1	10	10	0	0.0	1	2	1	1	50.0	1	10	10	0	0.0	1	1
	CALIFORNIA																					
2	College of Medical Evangelists	70	61	3	4.3	8	70	67	3	4.3	8	0	0	0	0.0	0	57	54	3	5.3	1	3
3	Stanford University School of Medicine	25	25	0	0.0	2	25	25	0	0.0	2	0	0	0	0.0	0	24	24	0	0.0	2	1
4	University of California Medical School	44	44	0	0.0	2	44	44	0	0.0	2	0	0	0	0.0	0	41	41	0	0.0	1	4
	COLORADO																					
5	University of Colorado School of Medicine	23	23	0	0.0	5	22	22	0	0.0	4	1	1	0	0.0	1	17	17	0	0.0	1	5
	CONNECTICUT																					
6	Yale University School of Medicine	38	36	2	5.3	6	35	35	0	0.0	6	3	1	2	66.7	1	18	18	0	0.0	2	6
	DISTRICT OF COLUMBIA																					
7	Georgetown University School of Medicine	48	46	2	4.2	14	47	45	2	4.3	13	1	1	0	0.0	1	20	18	2	10.0	6	7
8	George Washington University Medical School	41	39	2	4.9	11	35	33	2	5.7	10	6	6	0	0.0	5	24	24	0	0.0	5	8
9	Howard University School of Medicine	45	34	11	24.4	10	43	34	9	21.0	10	2	0	2	100.0	2	18	16	2	11.1	3	9
	GEORGIA																					
10	Emory University School of Medicine	106	105	1	0.9	8	100	100	0	0.0	8	6	5	1	16.7	1	76	76	0	0.0	4	10
11	University of Georgia Medical Department	40	39	1	2.5	4	37	37	0	0.0	3	3	2	1	33.3	2	33	33	0	0.0	3	11
	ILLINOIS																					
12	Chicago Medical School	32	17	15	46.9	3	31	16	15	48.4	3	1	1	0	0.0	1	2	1	1	50.0	1	12
13	General Medical College	48	41	7	14.6	7	48	41	7	14.6	7	0	0	0	0.0	0	41	35	6	14.6	6	13
14	Loyola University School of Medicine	50	43	7	14.0	10	46	40	6	13.0	7	4	3	1	25.0	4	41	36	5	12.2	5	14
15	Northwestern University Medical School	102	98	4	3.9	21	97	93	4	4.1	21	5	5	0	0.0	4	82	79	3	3.7	16	15
16	Rush Medical College (University of Chicago)	115	110	5	4.3	19	110	108	2	1.8	18	5	2	3	60.0	3	76	76	0	0.0	9	18
17	University of Illinois College of Medicine	104	100	4	3.8	11	95	95	0	0.0	9	9	5	4	44.4	6	92	92	0	0.0	8	17
	INDIANA																					
18	Indiana University School of Medicine	67	66	1	1.5	7	65	64	1	1.5	5	2	2	0	0.0	2	64	63	1	1.6	5	18
	IOWA																					
19	State University of Iowa College of Medicine	58	57	1	1.7	9	53	52	1	1.9	5	5	5	0	0.0	5	50	49	1	2.0	3	19
	KANSAS																					
20	University of Kansas School of Medicine	28	28	0	0.0	3	28	28	0	0.0	3	0	0	0	0.0		22	22	0	0.0	1	20
	KENTUCKY																					
21	University of Louisville School of Medicine	62	57	5	8.1	9	49	49	0	0.0	5	13	8	5	38.4	4	48	48	0	0.0	5	21
	LOUISIANA																					
22	Tulane University of Louisiana School of Medicine	93	90	3	3.2	13	91	88	3	3.3	12	2	2	0	0.0	2	75	75	0	0.0	10	22
	MARYLAND																					
23	Johns Hopkins University Medical Department	74	73	1	1.4	20	68	63	0	0.0	16	11	10	1	9.1	7	31	31	0	0.0	5	23
24	Univ. of Md. School of Med. and Coll. of P. & S.	88	83	5	5.7	14	78	75	3	3.8	10	10	8	2	20.0	6	64	63	1	1.6	7	24
	MASSACHUSETTS																					
25	Boston University School of Medicine	60	53	7	11.7	13	55	51	4	7.3	11	5	2	3	60.0	4	40	38	2	5.0	6	25
26	College of Physicians and Surgeons, Boston	11	5	6	54.5	3	8	4	4	50.0	2	3	1	2	66.7	3	3	2	1	33.3	1	26
27	Harvard University Medical School	89	87	2	2.2	21	78	77	1	1.3	18	11	10	1	9.1	6	20	20	0	0.0	3	27
28	Middlesex College of Medicine and Surgery.—N	36	21	15	41.7	2	35	21	14	40.0	1	1	0	1	100.0	1	16	13	3	18.7	1	28
29	Tufts College Medical School	166	155	11	6.6	12	156	145	11	7.1	10	10	10	0	0.0	8	122	114	8	6.6	7	29
	MICHIGAN																					
30	Detroit College of Medicine and Surgery	34	34	0	0.0	4	31	31	0	0.0	2	3	3	0	0.0	3	31	31	0	0.0	2	30
31	University of Michigan Medical School	156	154	2	1.3	12	150	150	0	0.0	11	6	4	2	33.3	3	130	130	0	0.0	6	31
	MINNESOTA																					
32	University of Minnesota Medical School	98	97	1	1.0	7	95	94	1	1.1	6	3	3	0	0.0	3	50	49	1	2.0	3	32
	MISSOURI																					
33	Kansas City College of Medicine and Surgery.—N	5	0	5	100.0	2	5	0	5	100.0	2	0	0	0	0.0	0	1	0	1	100.0	1	33
34	Kansas City University of Phys. and Surgs.—N	8	5	3	37.5	3	7	5	2	28.6	3	1	0	1	100.0	1	5	3	2	40.0	1	34
35	St. Louis College of Physicians and Surgeons	49	10	39	79.6	9	43	8	35	81.4	7	6	2	4	66.7	3	8	3	5	62.5	2	35
36	St. Louis University School of Medicine	109	106	3	2.8	13	107	105	2	1.9	12	2	1	1	50.0	2	91	91	0	0.0	6	36
37	Washington University School of Medicine	90	88	2	2.2	16	87	85	2	2.3	15	3	3	0	0.0	3	63	62	1	1.6	9	37
	NEBRASKA																					
38	Creighton University College of Medicine	44	44	0	0.0	7	43	43	0	0.0	7	1	1	0	0.0	1	37	37	0	0.0	5	38
39	University of Nebraska College of Medicine	73	71	2	2.7	14	69	68	1	1.4	12	4	3	1	25.0	3	53	53	0	0.0	4	39
	NEW YORK																					
40	Albany Medical College	18	17	1	5.6	2	17	17	0	0.0	1	1	0	1	100.0	1	17	17	0	0.0	1	40
41	Columbia University College of Phys. and Surgs.	113	108	5	4.4	17	103	101	2	1.9	16	10	7	3	30.0	3	69	69	0	0.0	6	41
42	Cornell University Medical College	55	53	2	3.6	7	51	49	2	3.9	5	4	4	0	0.0	2	40	39	1	2.5	2	42
43	Long Island College Hospital	57	51	6	10.5	5	52	49	3	5.8	2	5	2	3	60.0	5	42	41	1	2.4	1	43
44	New York Homeo. Med. Col. & Flower Hosp.—H	35	35	0	0.0	6	30	30	0	0.0	2	5	5	0	0.0	5	29	29	0	0.0	1	44
45	Syracuse University College of Medicine	41	41	0	0.0	5	39	39	0	0.0	4	2	2	0	0.0	2	33	33	0	0.0	2	45
46	University and Bellevue Hospital Medical College	111	108	3	2.7	7	106	104	2	1.9	5	5	4	1	20.0	4	101	99	2	2.0	2	46
47	University of Buffalo Medical Department	69	67	2	2.9	6	66	65	1	1.5	3	3	2	1	33.3	3	59	59	0	0.0	1	47
	OHIO																					
48	Eclectic Medical College.—E	37	34	3	8.1	7	32	30	2	6.2	4	5	4	1	20.0	3	30	28	2	6.7	3	48
49	Ohio State University College of Medicine	56	56	0	0.0	4	56	56	0	0.0	4	0	0	0	0.0	0	54	54	0	0.0	3	49
50	University of Cincinnati College of Medicine	77	76	1	1.3	10	75	75	0	0.0	9	2	1	1	50.0	2	68	68	0	0.0	4	50
51	Western Reserve University School of Medicine	45	45	0	0.0	5	43	43	0	0.0	4	2	2	0	0.0	2	43	43	0	0.0	4	51
	OKLAHOMA																					
52	University of Oklahoma School of Medicine	20	19	1	5.0	7	19	18	1	5.3	6	1	1	0	0.0	1	14	14	0	0.0	3	52
	OREGON																					
53	University of Oregon Medical School	44	42	2	4.5	7	43	41	2	4.7	7	1	1	0	0.0	1	32	30	2	6.2	4	53
	PENNSYLVANIA																					
54	Hahnemann Medical College and Hospital.—H	42	40	2	4.8	8	39	38	1	2.6	7	3	2	1	33.3	2	2	2	0	0.0	2	54
55	Jefferson Medical College	166	158	8	4.8	23	153	148	5	3.3	21	13	10	3	23.1	8	38	37	1	2.6	12	55
56	Temple University School of Medicine	29	29	0	0.0	5	27	27	0	0.0	3	2	2	0	0.0	2	0	0	0	0.0	0	56
57	University of Pennsylvania School of Medicine	156	153	3	1.9	25	147	144	3	2.1	23	9	9	0	0.0	7	21	21	0	0.0	9	57
58	University of Pittsburgh School of Medicine	41	41	0	0.0	5	39	39	0	0.0	3	2	2	0	0.0	2	0	0	0	0.0	0	58
59	Woman's Medical College of Pennsylvania	26	21	5	19.2	10	25	20	5	20.0	10	1	1	0	0.0	1	6	3	3	50.0	2	59
	SOUTH CAROLINA																					
60	Medical College of the State of South Carolina	40	40	0	0.0	7	39	39	0	0.0	6	1	1	0	0.0	1	32	32	0	0.0	2	60
	TENNESSEE																					
61	Meharry Medical College	99	69	30	30.3	20	80	59	21	26.2	19	19	10	9	47.4	6	49	39	10	20.4	10	61
62	University of Tennessee College of Medicine	57	56	1	1.8	12	51	50	1	2.0	8	6	6	0	0.0	4	47	43	1	2.1	6	62
63	Vanderbilt University School of Medicine	81	73	8	9.9	14	70	65	5	7.1	13	11	8	3	27.3	5	53	52	1	1.0	6	63
	TEXAS																					
64	Baylor University College of Medicine	18	18	0	0.0	3	18	18	0	0.0	3	0	0	0	0.0	0	17	17	0	0.0	2	64
65	University of Texas School of Medicine	72	71	1	1.4	5	71	71	0	0.0	5	1	0	1	100.0	1	69	69	0	0.0	4	65

H = Homeopathic- E = Eclectic; N = Nondescript.

NAME OF COLLEGE	Graduates of All Years: Examined Number	Passed Number	Failed Number	Failed Per Cent.	Number of States	Graduates of 1920-1924: Number Examined	Passed Number	Failed Number	Failed Per Cent.	Number of States	Graduates of 1919 and Previous: Number Examined	Passed Number	Failed Number	Failed Per Cent.	Number of States	Graduates of 1924: Number Examined	Passed Number	Failed Number	Failed Per Cent.	Number of States	Marginal Number
VERMONT																					
University of Vermont College of Medicine	50	49	1	2.0	10	46	46	0	0.0	8	4	3	1	25.0	3	34	34	0	0.0	3	66
VIRGINIA																					
Medical College of Virginia	106	102	4	3.8	12	103	101	2	1.9	11	3	1	2	66.7	2	90	89	1	1.1	9	67
University of Virginia Department of Medicine	29	29	0	0.0	11	25	25	0	0.0	9	4	4	0	0.0	4	14	14	0	0.0	3	68
WISCONSIN																					
Marquette University School of Medicine	42	40	2	4.8	1	42	40	2	4.8	1	0	0	0	0.0	0	39	37	2	5.1	1	69
PHILIPPINE ISLANDS																					
University of the Philippines, Manila	10	10	0	0.0	1	10	10	0	0.0	1	0	0	0	0.0	0	10	10	0	0.0	1	70
University of St. Thomas, Manila	45	18	27	60.0	1	45	18	27	60.0	1	0	0	0	0.0	0	43	18	25	58.1	1	71
CANADA																					
Dalhousie University Faculty of Medicine	8	5	3	37.5	4	5	3	2	40.0	2	3	2	1	33.3	3	1	1	1	50.0	1	72
Laval University Faculty of Medicine	2	1	1	50.0	2	2	1	1	50.0	2	0	0	0	0.0	0	1	1	0	0.0	1	73
McGill University Faculty of Medicine	79	76	3	3.8	19	66	65	1	1.5	18	13	11	2	15.4	9	16	16	0	0.0	5	74
Queen's University Faculty of Medicine	21	20	1	4.8	12	17	17	0	0.0	9	4	3	1	25.0	4	5	5	0	0.0	4	75
University of Manitoba Faculty of Medicine	9	9	0	0.0	4	6	6	0	0.0	4	3	3	0	0.0	3	3	3	0	0.0	2	76
University of Montreal Medical Faculty	8	5	3	37.5	5	6	4	2	33.3	3	2	1	1	50.0	2	5	3	2	40.0	3	77
University of Toronto Faculty of Medicine	77	75	2	2.6	17	54	53	1	1.9	10	23	22	1	4.4	13	6	6	0	0.0	4	78
University of Western Ontario Medical School	8	7	1	12.5	5	5	5	0	0.0	3	3	2	1	33.3	3	2	2	0	0.0	1	79
Foreign Colleges	591	360	231	39.1	34	268	174	94	35.1	28	323	186	137	42.4	29	6	4	2	33.3	5	80
Miscellaneous Medical Colleges	185	96	89	48.1	31	8	6	2	25.0	6	177	90	87	49.2	30	0	0	0	0.0	0	81
Undergraduates and Osteopaths	34	28	6	17.6	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	82
Totals by States	5,350	.....	.....	.....	.....	4,490	.....	.....	.....	.....	826	.....	.....	.....	.....	2,937	.....	.....	.....	.....	83
Totals — Examined — Passed	.....	4,713	.....	.....	.....	.....	4,160	.....	.....	.....	.....	525	.....	.....	.....	.....	2,831	.....	.....	.....	84
Totals — Examined — Failed	.....	.....	637	.....	.....	.....	.....	330	.....	.....	.....	.....	301	.....	.....	.....	.....	106	.....	.....	85
Percentage of Failures	.....	.....	.....	11.9	.....	.....	.....	.....	7.3	.....	.....	.....	.....	36.5	.....	.....	.....	.....	3.6	.....	86

H = Homeopathic- E = Eclectic; N = Nondescript.

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relations with other states (Florida, Massachusetts and New York—see Table G) examined the largest numbers of old practitioners.

Graduates of 1924 Examined During 1924

Table C also gives the results for the graduates of 1924 who were examined during the year by the state boards, and shows that 2,937, or 54.9 per cent., of all candidates examined during the year graduated in 1924, including forty who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,562 students last year; therefore, 81.3 per cent. of all graduates of 1924 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which accounts for some of the remaining 18.7 per cent. Of the 2,937 graduates of 1924 who were examined, 106, or 3.6 per cent., failed.

Nonrecognition of Medical Colleges

Table D shows for each college, from official reports, the states in which its diplomas are not given full recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "not in good standing"; some give them as "not reputable"; in New York full recognition is given only to colleges which are "registered," and in Michigan, colleges are divided into groups, only those of Group I having full recognition. Table D also shows the latest rating given to each college by the Council on Medical Education and Hospitals. For the student who is selecting a medical college, the facts in Table D are of extreme importance. There are sixty-four, or 80 per cent. of all medical colleges, which have complete recognition in all states. There are five others for which the few instances of nonrecognition are due to certain technicalities in state board requirements. If the student gets his medical training in one of the remaining eleven colleges, however, he will find on graduation that in from seven to forty-nine states he cannot secure a license to practice.

During the twelve years that Table D has been published, the proportion of fully recognized colleges was increased from 29 per cent. in 1913 to 80 per cent. in 1925.

Of the fifty states—counting in Alaska and the District of Columbia—the state licensing boards of forty-eight, to some extent at least, are now utilizing their legal power to refuse recognition to medical colleges that do not meet the requirements in the respective states. In the other two states, the boards do not have the authority to enforce reasonable standards. In Arkansas and Connecticut, although the regular medical boards are debarring graduates of low grade colleges, such candidates have been licensed by the separate eclectic boards.

Table 1.—*Recognition of Medical Colleges (Based on Table D)*

	No. of Colleges
Recognized by all state boards	64
Not recognized by from 1 to 3 state boards	5
Not recognized by from 5 to 19 state boards	5
Not recognized by from 46 to 49 state boards	6
Total	80

It is evident that if the graduates of low standard medical colleges are not eligible for license in the majority of states, they will flock to the few that still grant such recognition. The following states, therefore, Arkansas (eclectic board), Connecticut (eclectic board), Massachusetts and the District of Columbia will remain the dumping ground for the output of low grade medical colleges until the licensing boards obtain and exercise the needed authority to bar them.

Study of Totals and Percentages

A study of totals and percentages (Table 2) as compared with previous years is of interest. The number 5,350 examined in 1924 was 652 more than were examined in 1923, 1,357 more than in 1922, and 543 more than in 1921. The fluctuations in the numbers examined indicate similar fluctuations in the numbers of graduates in the various years. Indications are that the totals will be gradually increased during the next five years.

Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables G, H, I, J, K and L. By all methods—examination, reciprocity under exemption, etc.—6,553 physicians were *licensed* during 1924, 232 more than in 1923, 1,056 more than in 1922, but 1,312 less than in 1906, when 7,865 physicians were licensed.

(CONTINUED ON PAGE 1349)

TABLE D—RECOGNITION OF MEDICAL COLLEGES

This table, based on official reports, shows in what states diplomas granted by certain medical colleges are not recognized as an acceptable qualification for the license to practice medicine

Colleges marked (x) have been reported as not recognized by the states in the columns of which the letter appears

	COLLEGE	Classification by Council on Medical Education†	1 Alabama	2 Alaska	3 Arizona	4 Arkansas	5 California	6 Colorado	7 Connecticut	8 Delaware	9 Dist. of Columbia	10 Florida	11 Georgia	12 Idaho	13 Illinois	14 Indiana	15 Iowa	16 Kansas	17 Kentucky	18 Louisiana	19 Maine	20 Maryland	21 Massachusetts	22 Michigan	23 Minnesota	24 Mississippi	25 Missouri	26 Montana	27 Nebraska	28 Nevada	29 New Hampshire	30 New Jersey	31 New Mexico	32 New York	33 North Carolina	34 North Dakota	35 Ohio	36 Oklahoma	37 Oregon	38 Pennsylvania	39 Rhode Island	40 South Carolina	41 South Dakota	42 Tennessee	43 Texas	44 Utah	45 Vermont	46 Virginia	47 Washington	48 West Virginia	49 Wisconsin	50 Wyoming	Reported Non-Recognition by State Licensing Boards: No. of State Boards reporting full recognition	No. of State Boards reporting college not recognized	Percentage of State Boards reporting full recognition	Marginal Number
1	Albany Medical College	A																					x																													49	1	98	1
2	Baylor University School of Medicine	A																																																			50	..	100	2
3	Boston University School of Medicine	A																																																		50	..	100	3
4	Chicago Medical School [1]	C	x	x	x	x	x	x	x	x	..	x	x	x	..	x	x	x	x	x	x	x	..	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	4	46	8	4
5	College of Medical Evangelists	A													x			x														x	x																				45	5	90	5
6	College of Physicians and Surgeons, Boston	C	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	3	47	6	6
7	Columbia University College of Physicians and Surg.	A	..																																																	50	..	100	7
8	Cornell University Medical College	A																																																	50	..	100	8
9	Creighton University College of Medicine	A																																																	50	..	100	9
10	Dartmouth Medical School *	A																																																	50	..	100	10
11	Detroit College of Medicine and Surgery	A																																																	50	..	100	11
12	Eclectic Medical College	B	x							x																			x			x				x						x	x										41	9	82	12
13	Emory University Medical College	A																																																	50	..	100	13
14	General Medical College, Chicago	B	x							x	..	x						x	x									x			x				x				x	x							x		x		x	35	15	70	14
15	Georgetown University School of Medicine	A																																																	50	..	100	15
16	George Washington University Medical School	A																																																	50	..	100	16
17	Hahnemann Med. College and Hospital, Philadelphia	A																																																	50	..	100	17
18	Harvard University Medical School	A																																																	50	..	100	18
19	Howard University School of Medicine	A																						x																											50	..	100	19
20	Indiana University School of Medicine	A																																																	50	..	100	20
21	Jefferson Medical College	A																																																	50	..	100	21
22	Johns Hopkins University Medical Department	A																																																	50	..	100	22
23	Kansas City College of Medicine and Surgery [2]	C	x			x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	4	46	8	23
24	Kansas City University of Physicians and Surgeons [3]	C	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2	48	4	24
25	Stanford University School of Medicine	A																																																	50	..	100	25
26	Long Island College Hospital	A																																																	50	..	100	26
27	Loyola University Medical Department	A																																																	50	..	100	27
28	Marquette University School of Medicine	A																																																	50	..	100	28
29	Medical College of the State of South Carolina	A																																																	50	..	100	29
30	Medical College of Virginia	A																																																	50	..	100	30
31	Meharry Medical College	A				x																		x										x																47	3	94	31
32	Middlesex College of Medicine and Surgery	C	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	3	47	6	32
33	New York Homeo. Med. College and Flower Hospital	B	x			x												x										x			x				x				x							x		x		x	36	14	72	33
34	Northwestern University Medical School	A																																																	50	..	100	34
35	Ohio State University College of Medicine	A																																																	50	..	100	35
36	Rush Medical College (University of Chicago)	A																																																	50	..	100	36
37	St. Louis College of Physicians and Surgeons	C	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	..	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2	48	4	37
38	St. Louis University School of Medicine	A																																																	50	..	100	38
39	State University of Iowa College of Medicine	A																																																	50	..	100	39
40	Syracuse University College of Medicine	A																																																	50	..	100	40
41	Temple University School of Medicine	B	x			x						x			x			x						x			x	x			x	x							x		x	x		x				x				x	31	19	62	41
42	Tufts College Medical School	A																																																	50	..	100	42
43	Tulane University School of Medicine	A																																																	50	..	100	43
44	University and Bellevue Hospital Medical College	A																						x																											49	1	98	44
45	University of Alabama School of Medicine *	A																																																	50	..	100	45
46	University of Arkansas Medical Department	A																						x																											49	1	98	46
47	University of Buffalo Medical Department	A																																																		50	..	100	47
48	University of California Medical School	A																																																	50	..	100	48
49	University of Cincinnati Medical College	A																																																	50	..	100	49
50	University of Colorado School of Medicine	A																																																	50	..	100	50
51	University of Georgia Medical Department	A																																																	50	..	100	51
52	University of Illinois College of Medicine	A																																																	50	..	100	52
53	University of Kansas School of Medicine	A																																																	50	..	100	53
54	University of Louisville School of Medicine	A																																																	50	..	100	54
55	Univ. of Md. School of Med. and Coll. of P. and S.	A																																																	50	..	100	55
56	University of Michigan Medical School	A																																																	50	..	100	56
57	University of Minnesota Medical School	A																																																		50	..	100	57
58	University of Mississippi Department of Medicine *	A																																																		50	..	100	58

| | | |

lowest grade medical schools—were licensed as physicians and surgeons.

TOTAL REGISTRATION IN FIVE YEARS

Table H permits the reader to compare the registrations in each state for the last five years. There was a decrease during the first three years, but an increase during the last two.

In 1924, the total registered was 6,553, an increase of 232. Regardless of the general increases in the numbers registered in 1924, marked decreases are noted in the government possessions, 151; in Texas, 103; in New Jersey, 84, and in California, 54. The largest increases in registration were in New York, 127; Pennsylvania, 87; Florida and Wisconsin, each 85, and Ohio, 81. During the last five years, New York registered 4,041, the highest number, followed by California with 3,192; Illinois with 2,075; Ohio with 1,593; Pennsylvania with 1,562, and Minnesota with 1,338. The three lowest registrations are Delaware with 66, New Hampshire with 83 and North Dakota with 87.

MEDICAL TRAINING OF APPLICANTS LICENSED IN 1924

Table I is of special interest, since it shows for each state the numbers of candidates coming from medical schools rated in Classes A, B and C, thereby indicating the character of the medical training of the candidates licensed during 1924. Of the 6,553 candidates registered, 4,713 were licensed by examination and 1,840 by reciprocity or on presentation of acceptable credentials. Those who graduated prior to 1907, when the first classification of medical colleges was completed by the Council on Medical Education, are included among graduates of "Miscellaneous Colleges." Among the graduates of Class C schools are included twenty-four osteopaths who were licensed as physicians in Colorado, Massachusetts and Texas.

As will be noted, the largest number of Class C graduates was licensed in Massachusetts with 46, followed by Illinois with 18, Colorado with 17, California with 8, and Florida and Nevada with 4 each. Thanks to the exposure of the diploma mills, only one Class C candidate (a nongraduate) was licensed in Arkansas last year and none in Connecticut.

TABLE 3.—*Source of Physicians Licensed in Eight Years*

Year	From Medical Colleges in						Miscellaneous and Foreign		Total
	Class A		Class B		Class C				
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	
1917	3,369	62.1	988	18.2	297	4.3	769	14.4	5,423
1918	2,456	58.7	682	16.3	342	8.2	705	16.8	4,185
1919	4,368	66.4	872	13.2	278	4.2	1,066	16.2	6,584
1920	4,597	70.2	631	9.6	275	4.2	1,054	16.0	6,557
1921	4,445	70.0	585	9.2	394	6.2	924	14.6	6,348
1922	3,999	72.8	444	8.1	316	5.7	738	13.4	5,497
1923	4,755	75.2	380	6.0	299	4.8	887	14.1	6,321
1924	5,196	79.3	404	6.2	129	1.9	824	12.6	6,553
Totals	33,185	69.9	4,986	10.5	2,330	4.9	6,967	14.7	47,408

New York registered 62 Class B graduates—the largest number—followed by California, 46; Ohio, 33; Illinois, 31; Pennsylvania, 29, and Wisconsin, 28. In 1924, only Class A graduates were registered by either examination or reciprocity in Nebraska, Rhode Island, Utah and Vermont.

TABLE E.—*Colleges Having Fifty or More Examined*

COLLEGES	Graduates of All Years					Graduates of 1920-1924					Graduates of 1919 and Previous					Graduates of 1924					Marginal No., Table A
	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	
Tufts College Medical School	166	155	11	6.6	12	156	145	11	7.1	10	10	10	0	0.0	8	122	114	8	6.6	7	29
Jefferson Medical College	166	158	8	4.8	23	153	148	5	3.3	21	13	10	3	23.1	8	38	37	1	2.6	12	55
University of Michigan Medical School	156	154	2	1.3	12	150	150	0	0.0	11	6	4	2	33.3	3	130	130	0	0.0	6	31
University of Pennsylvania School of Medicine	156	153	3	1.9	25	147	144	3	2.1	23	9	9	0	0.0	7	21	21	0	0.0	9	57
Rush Medical College	115	110	5	4.3	19	110	108	2	1.8	18	5	2	3	60.0	3	76	76	0	0.0	9	16
Columbia University College of Phys. & Surgs.	113	108	5	4.4	17	103	101	2	1.9	16	10	7	3	30.0	3	69	69	0	0.0	6	41
University & Bellevue Hospital Medical College	111	108	3	2.7	7	106	104	2	1.9	5	5	4	1	20.0	4	101	99	2	2.0	2	46
St. Louis University School of Medicine	109	106	3	2.8	13	107	105	2	1.9	12	2	1	1	50.0	2	91	91	0	0.0	6	36
Emory University School of Medicine	106	105	1	0.9	8	100	100	0	0.0	8	6	5	1	16.7	1	76	76	0	0.0	4	10
Medical College of Virginia	106	102	4	3.8	12	103	101	2	1.9	11	3	1	2	66.7	2	90	89	1	1.1	9	67
University of Illinois College of Medicine	104	100	4	3.8	11	95	95	0	0.0	9	9	5	4	44.4	6	92	92	0	0.0	8	17
Northwestern University Medical School	102	98	4	3.9	21	97	93	4	4.1	21	5	5	0	0.0	4	82	79	3	3.7	16	15
Meharry Medical College	99	69	30	30.3	20	80	59	21	26.2	19	19	10	9	47.4	6	49	39	10	20.4	10	61
University of Minnesota Medical School	98	97	1	1.0	7	95	94	1	1.1	6	3	3	0	0.0	3	50	49	1	2.0	3	32
Tulane University of Louisiana School of Med.	93	90	3	3.2	13	91	88	3	3.3	12	2	2	0	0.0	2	75	75	0	0.0	10	22
Washington University School of Medicine	90	88	2	2.2	16	87	85	2	2.3	15	3	3	0	0.0	3	63	62	1	1.6	9	37
Harvard University Medical School	89	87	2	2.2	21	78	77	1	1.3	18	11	10	1	9.1	6	20	20	0	0.0	3	27
Univ. of Maryland Sch. of Med. & Coll. of P. & S.	88	83	5	5.7	14	78	75	3	3.8	10	10	8	2	20.0	6	64	63	1	1.6	7	24
Vanderbilt University School of Medicine	81	73	8	9.9	14	70	65	5	7.1	13	11	8	3	27.3	5	53	52	1	1.9	6	63
University of Cincinnati College of Medicine	77	76	1	1.3	10	75	75	0	0.0	9	2	1	1	50.0	2	68	68	0	0.0	4	50
Johns Hopkins University Medical Department	74	73	1	1.4	20	63	63	0	0.0	16	11	10	1	9.1	7	31	31	0	0.0	5	23
University of Nebraska College of Medicine	73	71	2	2.7	14	69	68	1	1.4	12	4	3	1	25.0	3	53	53	0	0.0	4	39
University of Texas School of Medicine	72	71	1	1.4	5	71	71	0	0.0	5	1	0	1	100.0	1	69	69	0	0.0	4	65
College of Medical Evangelists	70	67	3	4.3	8	70	67	3	4.3	8	0	0	0	0.0	0	57	54	3	5.3	1	2
University of Buffalo Medical Department	69	67	2	2.9	6	66	65	1	1.5	3	3	2	1	33.3	3	59	59	0	0.0	1	47
Indiana University School of Medicine	67	66	1	1.5	7	65	64	1	1.5	5	2	2	0	0.0	2	64	63	1	1.6	5	18
University of Louisville School of Medicine	62	57	5	8.1	9	49	49	0	0.0	5	13	8	5	38.4	4	48	48	0	0.0	5	21
Boston University School of Medicine	60	53	7	11.7	13	55	51	4	7.3	11	5	2	3	60.0	4	40	38	2	5.0	6	25
State University of Iowa College of Medicine	58	57	1	1.7	9	53	52	1	1.9	5	5	5	0	0.0	5	50	49	1	2.0	3	19
Long Island College Hospital	57	51	6	10.5	5	52	49	3	5.8	2	5	2	3	60.0	5	42	41	1	2.4	1	43
University of Tennessee College of Medicine	57	56	1	1.8	12	51	50	1	2.0	8	6	6	0	0.0	4	47	46	1	2.1	6	62
Ohio State University College of Medicine	56	56	0	0.0	4	56	56	0	0.0	4	0	0	0	0.0	0	54	54	0	0.0	3	49
Cornell University Medical College	55	53	2	3.6	7	51	49	2	3.9	5	4	4	0	0.0	2	40	39	1	2.5	2	42
Loyola University School of Medicine	50	43	7	14.0	10	46	40	6	13.0	7	4	3	1	25.0	4	41	36	5	12.2	5	14
University of Vermont College of Medicine	50	49	1	2.0	10	46	46	0	0.0	8	4	3	1	25.0	3	34	34	0	0.0	3	65
Totals	3,155	3,010	145	4.6	....	2,944	2,852	92	3.1	....	211	158	53	25.1	....	2,159	2,115	44	2.0	....	

This table is interesting since it gives data relating to the 35 medical colleges having over fifty graduates examined, arranged according to the number examined. This allows of comparison between colleges having classes of nearly equal size. Tufts College Medical School and Jefferson Medical College had the largest number of graduates examined last year, each having 166. The higher place from the standpoint of the numbers examined, however, does not always mean the higher rank from the standpoint of scholarship as evidenced by the percentages of failures. The five highest failure percentages for graduates of all years are for the Meharry Medical College, 30.3; Loyola University School of Medicine, 14.0; Boston University School of Medicine, 11.7; Long Island College Hospital, 10.5; and Vanderbilt University School of Medicine, 9.9.

Of the thirty-five colleges 31 had failure precentages of less than 10. The average percentage of failures for these larger colleges for graduates of 1919 and previous years was 25.1; for graduates of 1920 to 1924, inclusive (recent graduates), 3.1; for graduates of 1924, 2.0; and for graduates of all years, 4.6. Of the 4,513 graduates of the 71 colleges in the United States which had graduates examined by the state boards in 1924, these larger colleges (50 per cent. of the schools) furnished 3,155, or 69.9 per cent. of the graduates examined.

Of the 6,553 physicians registered by all methods in 1924, 5,196, or 79.3 per cent., graduated from Class A medical colleges; 404, or 6.1 per cent., from Class B colleges; 129, or 2.0 per cent., from Class C colleges, and 824, or 12.6 per cent., graduated prior to 1907, when the first classification of medical colleges was prepared, or came from foreign medical colleges. By comparing these figures with the results for the previous seven years as shown in Table 3, it is noteworthy that the *percentages* from Class B and Class C colleges are steadily decreasing and the percentage of graduates of Class A colleges increasing.

TABLE F.—*Physicians Examined by State Boards 1920 to 1924, Inclusive*

STATES	1920		1921		1922		1923		1924		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	34	2	37	3	31	1	36	2	25	1	172	163	9	5.2
Arizona	33	14	6	10	7	2	6	2	6	0	86	58	28	32.6
Arkansas	48	28	46	6	30	1	50	4	32	1	246	206	40	16.3
California	150	34	184	56	208	67	185	68	250	80	1282	977	305	23.7
Colorado	56	46	44	16	32	34	51	19	40	15	353	223	130	36.8
Connecticut	97	26	145	27	114	26	77	19	83	22	636	516	120	18.9
Delaware	6	3	8	0	17	0	5	0	8	1	48	44	4	8.3
Dist. of Columbia	61	5	42	11	54	7	57	6	68	13	324	282	42	12.9
Florida	72	18	50	24	50	21	72	28	147	39	527	397	130	24.7
Georgia	70	6	68	0	68	1	80	1	80	0	374	366	8	2.1
Idaho	27	2	14	0	11	0	9	0	5	0	68	66	2	2.9
Illinois	404	66	384	61	286	68	350	105	364	81	2169	1788	381	17.6
Indiana	64	0	65	0	35	1	67	0	78	0	310	309	1	0.3
Iowa	70	2	61	0	49	0	53	0	59	0	300	298	2	0.7
Kansas	32	2	46	1	28	5	31	0	47	0	192	184	8	4.2
Kentucky	30	4	54	5	37	4	38	3	54	0	229	213	16	6.9
Louisiana	81	2	74	7	55	4	66	0	73	1	363	349	14	3.9
Maine	24	1	35	2	28	0	28	0	59	0	177	174	3	1.7
Maryland	107	11	123	7	74	3	91	5	96	4	521	491	30	5.8
Massachusetts	217	60	225	98	244	56	219	62	260	68	1513	1165	348	23.0
Michigan	161	2	176	2	119	4	202	2	224	2	894	882	12	1.3
Minnesota	90	4	120	1	107	3	83	0	115	0	523	515	8	1.5
Mississippi	30	1	15	2	27	2	22	4	20	1	124	114	10	8.1
Missouri	117	5	132	12	107	16	145	29	182	16	761	683	78	10.2
Montana	25	3	17	2	11	2	17	1	18	1	97	88	9	9.3
Nebraska	27	0	76	3	42	0	94	0	85	3	330	324	6	1.8
Nevada	14	2	3	1	13	1	7	2	7	0	50	44	6	12.0
New Hampshire	6	1	4	1	12	0	4	0	3	0	31	29	2	6.5
New Jersey	38	1	26	3	25	10	52	14	66	10	245	207	38	15.5
New Mexico	3	0	1	0	0	0	0	0	0	0	4	4	0	0.0
New York	703	246	806	128	599	80	675	153	788	177	4355	3571	784	18.0
North Carolina	70	3	51	4	37	8	65	5	89	1	333	312	21	6.4
North Dakota	13	3	6	5	6	2	11	1	3	0	50	39	11	22.0
Ohio	179	5	207	14	189	6	222	4	255	22	1097	1046	51	4.6
Oklahoma	14	0	38	1	30	2	27	3	15	0	120	114	6	5.0
Oregon	61	19	31	12	23	7	19	4	41	7	224	175	49	21.9
Pennsylvania	288	41	303	34	265	18	215	20	302	11	1497	1373	124	8.3
Rhode Island	25	5	27	1	27	0	26	1	20	3	135	125	10	7.4
South Carolina	33	8	28	2	24	1	40	0	34	2	172	159	13	7.6
South Dakota	38	2	19	1	19	0	21	0	21	1	122	118	4	3.3
Tennessee	82	0	102	0	65	1	100	0	116	0	466	465	1	0.2
Texas	108	0	77	1	77	0	75	0	98	1	432	430	2	0.5
Utah	18	1	17	1	11	3	10	1	8	0	70	64	6	8.6
Vermont	18	0	31	0	19	0	24	0	34	0	126	126	0	0.0
Virginia	55	4	61	4	55	0	71	2	76	1	329	318	11	3.4
Washington	24	5	20	7	6	6	11	0	30	1	110	91	19	17.3
West Virginia	41	10	37	11	42	9	47	4	61	4	266	228	38	14.3
Wisconsin	46	1	59	6	60	3	59	0	102	9	345	326	19	5.5
Wyoming	9	0	4	1	8	3	3	1	3	1	33	27	6	18.2
U. S. Territories and Possessions	33	21	42	7	28	4	80	125	63	37	440	246	194	44.1
Totals	4,787		4,807		3,993		4,698		5,350		23,635			
Registered	4,053		4,211		3,501		3,998		4,713		20,476			
Rejected	734		596		492		700		637		3,159			
Per Cent. Rejected	15.4		12.4		12.3		14.9		11.9		13.4			

This table gives the number of physicians who passed and failed in the examinations in each state during the last five years. The last four columns give the total and the percentage rejected by each state. Five states registered over 1,000 candidates by examination in the last five years, these being New York, Illinois, Pennsylvania, Massachusetts and Ohio. Altogether 20,476 physicians were registered by *examination* in the five years, with an average of 4,095 each year.

The five states having the highest percentages of failures in the five years were Colorado 36.8, Florida 24.7, California 23.7, Massachusetts 23.0, and North Dakota 22.0. Colorado and Massachusetts admitted osteopaths to their examinations as physicians and surgeons and would be expected to have high percentages. On the other hand, in most states, the boards refuse to recognize low-grade colleges (see Table D) and thereby eliminate inferior candidates prior to the examination, and correspondingly the percentages of failures at examinations are lower. For example, Minnesota rejected only 1.5 per cent. of those who took its examination, but refused to admit graduates of six inferior medical colleges to its examinations. In New Mexico and Vermont there were no failures. The next lowest failure precentages were in Tennessee, 0.2; Indiana, 0.3; and Texas, 0.5.

TRAINING OF PHYSICIANS REGISTERED IN SIX YEARS

Table J is of special interest and shows the character of the training of physicians registered during the last six years. It is noteworthy that of the 37,722 physicians registered in six years, 27,357, or 72.5 per cent., were graduates of Class A

TABLE G.—*Registration by State Boards During the Year 1924*

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1920-1924	Graduates, 1919 and Previous	Nongraduates and Graduates of Nondescript Colleges			
Alabama	20	5	..	25	..	50
Arizona	5	1	..	20	..	26
Arkansas	13	18	1	19	..	51
California	219	31	..	388	..	638
Colorado	29	3	8	46	..	86
Connecticut	67	16	..	24	..	107
Delaware	7	1	..	3	..	11
District of Columbia	65	3	..	22	..	90
Florida	73	74	..	10	..	157
Georgia	79	1	..	20	..	100
Idaho	3	2	..	11	..	16
Illinois	298	66	..	68	..	432
Indiana	77	1	..	79	..	157
Iowa	59	0	..	42	..	101
Kansas	41	6	..	43	..	90
Kentucky	52	2	..	33	1	88
Louisiana	69	4	..	8	..	81
Maine	47	12	..	9	..	68
Maryland	91	5	..	15	..	111
Massachusetts	205	40	15	6	..	266
Michigan	210	14	..	95	..	319
Minnesota	106	9	..	65	.	180
Mississippi	19	1	..	13	..	33
Missouri	175	7	..	5	3	190
Montana	13	5	..	8	..	26
Nebraska	84	1	..	14	..	99
Nevada	4	3	..	16	..	23
New Hampshire	2	1	..	19	..	22
New Jersey	50	16	..	58	..	124
New Mexico	0	0	..	16	..	16
New York	719	69	..	44	49	881
North Carolina	88	1	..	39	..	128
North Dakota	2	1	..	12	..	15
Ohio	230	16	..	133	..	388
Oklahoma	14	1	..	33	..	48
Oregon	36	5	..	16	..	57
Pennsylvania	283	19	..	41	..	343
Rhode Island	9	11	..	0	..	20
South Carolina	34	0	..	7	..	41
South Dakota	10	11	..	10	..	31
Tennessee	113	2	1	0	..	116
Texas	96	0	2	0	..	98
Utah	8	0	..	10	..	18
Vermont	32	2	..	2	..	36
Virginia	73	3	..	28	..	104
Washington	17	12	1	86	..	116
West Virginia	54	7	..	23	..	84
Wisconsin	90	12	..	87	..	189
Wyoming	2	1	..	16	..	19
U. S. Terr. and Poss.	59	4	..	0	..	63
Totals	4,100	525	28	1,787	53	6,553

This table shows the total number registered in each state by examination, by reciprocity, and by endorsement of credentials during 1924. The first three columns show those registered by examination, including recent graduates, older practitioners and nongraduates or graduates of nondescript colleges—including any osteopaths who were licensed as physicians and surgeons. The fourth column shows the number registered by the endorsement of licenses issued by other states (reciprocity) and of certificates of the Army, Navy, Public Health Service, and National Board of Medical Examiners. The fifth column shows those licensed under various exemption clauses in the practice acts, such as because of high professional standing or (in New Mexico) by the endorsement of diplomas of recognized medical schools. Massachusetts licensed 15 osteopaths as physicians and surgeons; Colorado licensed 8 and Texas licensed 2.

The last column shows for each state the total number of physicians registered by all methods during 1924. Six states registered over 300 each, these being in New York, 881; California, 638; Illinois, 432; Ohio, 388; Pennsylvania, 343, and Michigan, 319. Sixteen states registered less than fifty physicians each. The total registration by all methods was 6,553, an increase of 232 over the registration in 1923.

medical schools, 3,316, or 8.8 per cent., were graduates of Class B schools, and 1,690, or 4.5 per cent., were graduates of Class C schools. Graduates of foreign medical schools and those who graduated prior to 1907 from medical schools which since that year have not always been rated in Class A have been grouped under "Miscellaneous Graduates"; and during the six years, 5,360 of these graduates were registered.

TABLE H.—*Registration by State Boards for Five Years*

State	1920	1921	1922	1923	1924	Total	State	1920	1921	1922	1923	1924	Total
Alabama	54	51	43	53	50	251	Nevada	31	6	24	20	23	104
Arizona	33	6	37	27	26	129	New Hampshire	21	18	12	10	22	83
Arkansas	97	97	66	79	51	390	New Jersey	171	164	137	208	124	804
California	651	581	630	692	638	3,192	New Mexico	46	38	41	31	16	172
Colorado	138	123	119	102	86	568	New York	779	879	748	754	889	4,041
Connecticut	108	164	150	101	107	630	North Carolina	114	101	66	111	128	520
Delaware	7	14	22	12	11	66	North Dakota	28	14	14	16	15	87
District of Columbia	77	57	69	79	90	372	Ohio	311	326	261	307	388	1,593
Florida	72	50	56	72	157	407	Oklahoma	71	108	78	76	48	381
Georgia	114	86	84	95	100	479	Oregon	65	31	47	44	57	244
Idaho	41	33	22	12	16	124	Pennsylvania	316	334	313	256	343	1,562
Illinois	482	399	335	427	432	2,075	Rhode Island	25	27	27	26	20	125
Indiana	158	102	69	142	157	628	South Carolina	41	40	30	45	41	197
Iowa	132	126	70	70	101	499	South Dakota	49	24	22	28	31	154
Kansas	96	99	86	102	90	473	Tennessee	83	102	65	114	116	480
Kentucky	51	94	69	67	88	369	Texas	271	195	178	201	98	943
Louisiana	93	85	64	76	81	399	Utah	32	29	27	24	18	130
Maine	30	41	34	32	68	205	Vermont	20	34	21	30	36	141
Maryland	164	160	93	122	111	650	Virginia	85	82	80	98	104	449
Massachusetts	217	225	244	221	266	1,173	Washington	127	158	59	74	116	534
Michigan	287	248	202	282	319	1,338	West Virginia	95	74	82	106	84	441
Minnesota	174	215	200	147	180	916	Wisconsin	106	119	110	104	189	628
Mississippi	47	34	43	45	33	202	Wyoming	34	18	17	13	19	101
Missouri	177	165	130	216	190	878	U. S. Possessions	35	42	28	215	63	382
Montana	26	19	11	20	26	102							
Nebraska	75	111	62	118	99	465	Totals	6,557	6,348	5,497	6,321	6,553	31,276

This table shows the totals registered in each state during the last five years: Marked decreases since 1923 are noteworthy in Texas, 103; New Jersey, 84; California, 54; Arkansas and Missouri, 28. On the other hand marked increases, over 1923, are noted in New York, 127; Pennsylvania, 87; Florida and Wisconsin, each 85, and Ohio, 81. During the three years following 1919 the totals registered decreased from 6,564 to 5,497. In the three years since 1922 the totals have again increased to 6,553, which is the largest number since 1920.

TABLE I.—*Qualifications of Physicians Licensed in 1924*

Marginal Number	STATE	By Examination					By Reciprocity or Credentials					Totals Registered from Medical Colleges in Class				Grand Totals	Marginal Number
		Medical Colleges in Class				Totals	Medical Colleges in Class				Totals						
		A	B	C	Misc.		A	B	C	Misc.		A	B	C	Misc.		
1	Alabama	22	2	0	1	25	18	2	0	5	25	40	4	0	6	50	1
2	Arizona	5	1	0	0	6	12	4	0	4	20	17	5	0	4	26	2
3	Arkansas	16	6	1	9	32	11	3	0	5	19	27	9	1	14	51	3
4	California	221	3	0	26	250	240	43	8	97	388	461	46	8	123	638	4
5	Colorado	22	0	15	3	40	27	7	2	10	46	49	7	17	13	86	5
6	Connecticut	75	2	0	6	83	19	1	0	4	24	94	3	0	10	107	6
7	Delaware	4	2	0	2	8	2	0	0	1	3	6	2	0	3	11	7
8	District of Columbia	65	1	0	2	68	11	2	3	6	22	76	3	3	8	90	8
9	Florida	114	6	3	24	147	3	1	1	5	10	117	7	4	29	157	9
10	Georgia	80	0	0	0	80	12	3	2	3	20	92	3	2	3	100	10
11	Idaho	4	1	0	0	5	8	3	0	0	11	12	4	0	0	16	11
12	Illinois	261	18	18	67	364	48	13	0	7	68	309	31	18	74	432	12
13	Indiana	68	9	0	1	78	48	11	1	19	79	116	20	1	20	157	13
14	Iowa	55	0	0	4	59	29	6	3	4	42	84	6	3	8	101	14
15	Kansas	41	2	0	4	47	30	6	2	5	43	71	8	2	9	90	15
16	Kentucky	48	3	1	2	54	23	5	1	5	34	71	8	2	7	88	16
17	Louisiana	70	3	0	0	73	8	0	0	0	8	78	3	0	0	81	17
18	Maine	48	3	0	8	59	7	0	0	2	9	55	3	0	10	68	18
19	Maryland	85	2	0	9	96	7	2	2	4	15	92	4	2	13	111	19
20	Massachusetts	184	5	46	25	260	6	0	0	0	6	190	5	46	25	266	20
21	Michigan	212	6	0	6	224	71	7	1	16	95	283	13	1	22	319	21
22	Minnesota	100	2	0	13	115	57	1	0	7	65	157	3	0	20	180	22
23	Mississippi	19	0	0	1	20	9	3	0	1	13	28	3	0	2	33	23
24	Missouri	177	0	0	5	182	5	0	1	2	8	182	0	1	8	191	24
25	Montana	17	0	0	1	18	5	1	0	2	8	22	1	0	3	26	25
26	Nebraska	82	0	0	3	85	10	0	0	4	14	92	0	0	7	99	26
27	Nevada	1	1	2	3	7	7	0	2	7	16	8	1	4	10	23	27
28	New Hampshire	2	1	0	0	3	14	1	0	4	19	16	2	0	4	22	28
29	New Jersey	37	2	0	27	66	44	5	1	8	58	81	7	1	35	124	29
30	New Mexico	0	0	0	0	0	7	3	0	6	16	7	3	0	6	16	30
31	New York	631	58	0	99	788	72	4	0	17	93	703	62	0	116	881	31
32	North Carolina	88	1	0	0	89	21	4	1	13	39	109	5	1	13	128	32
33	North Dakota	2	0	0	1	3	6	2	0	4	12	8	2	0	4	14	33
34	Ohio	206	20	1	28	255	96	13	0	24	133	302	33	1	52	388	34
35	Oklahoma	13	2	0	0	15	20	3	2	8	33	33	5	2	8	48	35
36	Oregon	37	2	1	1	41	7	4	0	5	16	44	6	1	6	57	36
37	Pennsylvania	263	29	0	10	302	41	0	0	0	41	304	29	0	10	343	37
38	Rhode Island	17	0	0	3	20	0	0	0	0	0	17	0	0	3	20	38
39	South Carolina	34	0	0	0	34	5	2	0	0	7	39	2	0	0	41	39
40	South Dakota	15	0	1	5	21	8	0	1	1	10	23	0	2	6	31	40
41	Tennessee	113	2	1	0	116	0	0	0	0	0	113	2	1	0	116	41
42	Texas	94	0	2	2	98	0	0	0	0	0	94	0	2	2	98	42
43	Utah	8	0	0	0	8	9	0	0	1	10	17	0	0	1	18	43
44	Vermont	32	0	0	2	34	2	0	0	0	2	34	0	0	2	36	44
45	Virginia	76	0	0	0	76	23	2	1	2	28	99	2	1	2	104	45
46	Washington	19	1	1	9	30	46	12	0	28	86	65	13	1	37	116	46
47	West Virginia	53	0	0	8	61	18	1	0	4	23	71	1	0	12	84	47
48	Wisconsin	75	15	0	12	102	65	13	0	9	87	140	28	0	21	189	48
49	Wyoming	1	0	1	1	3	13	0	0	3	16	14	0	1	4	19	49
50	U. S. Territories and Possessions	34	0	0	29	63	0	0	0	0	0	34	0	0	29	63	50
	Totals	3,946	211	94	462	4,713	1,250	193	35	362	1,840	5,196	404	129	824	6,553	

In 1924, only 1 candidate was licensed by the Arkansas Eclectic Board, this being a non-graduate who is rated as of Class C.

Of the 46 graduates of Class C colleges licensed in Massachusetts, 15 were graduates of osteopathic colleges, institutions not generally recognized as medical colleges. In Colorado, of the 17 Class C applicants registered, 7 were graduates of osteopathic colleges.

In Connecticut, in 1924, no candidates were reported as licensed by the Eclectic Board and no Class C graduates were licensed in the state.

Illinois harbors the Chicago Medical School, a Class C medical college, not now recognized in 45 other states. Massachusetts has two Class C colleges, the College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery, and does not have authority to refuse recognition to low grade institutions. That accounts for the large number of Class C graduates licensed in that state. Missouri has three Class C colleges, the Kansas City College of Medicine and Surgery, the Kansas City University of Physicians and Surgeons, and the St. Louis College of Physicians and Surgeons. These were refused recognition by the Missouri Board until forced to do so by an amendment to the medical practice law in 1922—an amendment that was repealed early in 1923. Missouri registered only 1 Class C graduate in 1924 as compared with 38 in 1923.

Texas does not recognize Class C medical schools, but accepted 2 graduates of osteopathic colleges, which are medical schools of a still lower type.

Thirteen states accepted Class C graduates through reciprocity, while they licensed none by examination. California so registered 8 and the District of Columbia and Iowa, each 3. One or two each were licensed by reciprocity in ten other states. Altogether, there were 27 Class C graduates licensed by reciprocity in states which registered none by examination. On the whole 94 Class C graduates were licensed by examination and 35 through reciprocity, a total of 129, 169 less than in 1923.

The largest number of candidates registered who graduated from Class C colleges was *226* in Massachusetts, the next highest being *216* in California, *170* in Connecticut, *169* in Illinois, *143* in Colorado, *135* in Arkansas and *106* in Texas.

Note the numbers of Class C graduates licensed in each of several states during the six years. In Arkansas the licensing each year of from seventeen to sixty-three Class C candidates abruptly stops in 1924, when only one (an undergraduate) was licensed. In Connecticut, only a few such candidates were licensed each year until in 1921, 1922 and 1923 the numbers bounded up to *66*, *74* and *26*, respectively. 1922 the practice law was amended, forcing the board to examine Class C graduates—hence the larger number in 1923. In 1924, after the board's power was restored and the low grade medical schools were again refused recognition, only one such candidate was registered.

In California and Texas the reductions in the numbers of Class C candidates licensed in 1924 were due to the smaller numbers of osteopaths licensed as physicians and surgeons. In Arkansas, Connecticut and Missouri, the radical reductions result from the exposure late in 1923 of the Missouri diploma mill ring by the St. Louis *Star* and to the drastic

TABLE J.—*Qualifications of Physicians Licensed by State Medical Boards in Six Years*

Mar. No.	State	Graduates of Class A Medical Schools							Graduates of Class B Medical Schools							Graduates of Class C Medical Schools							Grads. of Misc. Colleges 6 Yrs.	Total Registrations 6 Yrs.	Mar. No.
		1919	1920	1921	1922	1923	1924	Total	1919	1920	1921	1922	1923	1924	Total	1919	1920	1921	1922	1923	1924	Total			
1	Alabama	37	39	37	28	46	40	227	13	10	7	8	5	4	47	0	3	1	0	0	0	4	29	307	1
2	Arizona	13	21	4	16	15	17	86	10	3	0	2	1	5	21	2	0	0	1	1	0	4	73	184	2
3	Arkansas	31	36	47	24	24	27	189	34	16	9	15	8	9	91	33	26	21	18	36	1	135	105	520	3
4	California	154	265	235	349	459	461	1,923	69	69	85	74	56	46	399	20	61	47	63	17	8	216	1,019	3,557	4
5	Colorado	56	57	54	62	59	49	337	13	7	9	8	6	7	50	33	33	25	14	21	17	143	209	739	5
6	Connecticut	89	93	69	64	62	94	471	7	4	7	6	2	3	29	2	1	66	74	27	0	170	61	731	6
7	Delaware	21	3	10	16	9	6	65	6	3	1	2	2	2	16	0	1	2	3	0	0	6	11	98	7
8	Dist. Columbia	55	66	45	59	66	76	367	2	4	0	0	2	3	11	2	1	1	4	5	3	16	41	435	8
9	Florida	31	33	28	42	60	117	311	5	5	5	3	4	7	29	3	3	1	1	1	4	13	127	480	9
10	Georgia	80	76	72	75	87	92	482	18	25	6	3	4	3	59	1	1	2	0	2	2	8	53	602	10
11	Idaho	25	31	12	15	7	12	102	5	2	5	3	2	4	21	2	0	0	1	0	0	3	61	187	11
12	Illinois	376	370	320	288	341	309	2,004	129	54	21	23	27	31	285	38	33	45	10	25	18	169	172	2,630	12
13	Indiana	41	103	81	53	111	116	505	10	27	10	4	10	20	81	2	2	0	0	1	1	6	87	679	13
14	Iowa	104	103	97	64	64	84	516	19	15	15	2	1	6	58	4	2	6	0	0	3	15	67	656	14
15	Kansas	58	62	71	56	55	71	368	17	10	7	10	11	8	63	6	2	4	4	21	2	39	90	560	15
16	Kentucky	40	35	63	41	54	71	304	11	8	10	11	6	8	54	4	3	5	4	3	2	21	56	435	16
17	Louisiana	81	82	74	54	68	78	437	9	6	3	3	3	3	27	1	0	1	2	0	0	4	32	500	17
18	Maine	39	23	32	29	29	55	207	1	0	2	0	2	3	8	0	0	0	1	0	0	0	46	262	18
19	Maryland	154	130	140	81	109	92	706	11	3	10	2	5	4	35	4	3	4	1	0	2	14	77	832	19
20	Massachusetts	243	184	153	178	138	190	1,086	14	9	4	2	3	5	37	19	19	42	51	50	46	226	120	1,479	20
21	Michigan	122	215	195	161	238	283	1,214	19	24	26	7	10	13	99	0	1	2	2	1	1	7	180	1,509	21
22	Minnesota	140	146	190	178	138	157	949	16	14	7	6	2	3	48	1	1	0	0	0	0	2	96	1,095	22
23	Mississippi	32	34	27	25	35	28	181	0	4	4	8	4	3	29	1	1	0	3	0	0	5	30	245	23
25	Missouri	159	127	136	109	148	182	861	25	32	14	4	16	0	91	11	5	5	7	38	1	67	101	1,120	24
25	Montana	15	18	14	10	15	22	94	5	2	0	0	3	1	11	1	1	0	0	0	0	2	28	135	25
26	Nebraska	119	44	82	52	108	92	497	22	17	12	5	3	0	59	7	2	5	0	0	0	14	70	640	26
27	Nevada	7	10	1	5	5	8	36	2	2	0	3	3	1	11	5	6	0	5	6	4	26	58	131	27
28	New Hampshire	14	17	10	8	9	16	74	0	0	1	1	0	2	4	1	0	1	1	0	0	3	22	103	28
29	New Jersey	187	111	113	99	152	81	743	22	11	15	5	9	7	69	0	7	1	5	1	1	15	235	1,062	29
30	New Mexico	17	14	20	15	14	7	87	11	7	3	5	3	3	32	1	0	0	0	1	0	2	107	228	30
31	New York	600	675	758	630	648	703	4,014	66	55	73	53	39	62	348	3	0	1	5	1	0	10	342	4,714	31
32	North Carolina	67	91	76	52	86	109	481	5	12	5	4	13	5	44	1	2	1	0	2	1	7	74	606	32
33	North Dakota	11	23	10	10	13	8	75	4	3	0	0	3	2	12	0	0	0	0	0	0	0	24	111	33
34	Ohio	194	228	189	188	250	302	1,351	51	44	84	46	25	33	283	1	0	3	1	0	1	6	226	1,866	34
35	Oklahoma	28	35	50	32	47	33	225	45	13	10	15	11	5	99	5	5	26	6	4	2	48	143	515	35
36	Oregon	27	41	19	28	36	44	195	0	6	1	1	5	6	19	2	3	2	1	1	1	10	70	294	36
37	Pennsylvania	239	289	289	261	229	304	1,611	18	16	16	22	17	29	118	1	1	14	5	0	0	21	79	1,829	37
38	Rhode Island	14	20	15	22	25	17	113	2	1	1	0	0	0	4	1	1	1	0	0	0	3	25	145	38
39	South Carolina	42	36	31	24	39	39	211	3	1	2	2	4	2	14	0	1	3	0	1	0	5	12	242	39
40	South Dakota	8	33	17	15	23	23	119	2	3	2	2	0	0	9	1	2	1	0	0	2	6	37	171	40
41	Tennessee	69	54	69	35	110	113	450	25	24	30	26	1	2	108	23	2	0	2	0	1	28	66	652	41
42	Texas	156	159	116	108	130	94	769	38	16	18	22	19	0	113	16	28	34	8	18	2	106	229	1,217	42
43	Utah	35	24	21	24	23	17	144	6	0	1	1	0	0	8	3	2	4	0	0	0	9	28	189	43
44	Vermont	20	20	29	21	26	34	150	2	0	0	0	0	0	2	0	0	0	0	0	0	0	10	162	44
45	Virginia	102	70	75	70	86	99	502	8	7	2	4	2	2	25	0	1	2	2	2	1	8	47	582	45
46	Washington	49	60	73	38	45	65	330	13	8	19	7	11	13	71	9	3	2	0	0	1	15	219	635	46
47	West Virginia	47	71	48	66	91	71	394	15	10	8	5	4	1	43	1	3	1	4	0	0	9	73	519	47
48	Wisconsin	97	78	87	88	87	140	577	21	13	12	5	9	28	88	2	1	9	1	3	0	16	92	773	48
49	Wyoming	12	17	10	5	8	14	66	11	6	1	3	3	0	24	5	1	1	5	0	1	13	37	140	49
50	U. S. Territories and Possessions	10	25	31	23	22	34	151	6	0	2	1	1	0	10	0	1	2	0	0	0	3	55	219	50
	Totals	4,368	4,597	4,445	3,906	4,755	5,196	27,357	872	63	585	444	380	404	3,316	278	275	394	315	298	129	1,689	5,300	37,722	

Of the 135 graduates of low grade colleges licensed in Arkansas during the last six years, 132 were licensed by the Eclectic Board of Medical Examiners and only 3 by the Regular Board.

During the six years 216 graduates of low grade colleges were licensed in California, including 98 osteopaths who were licensed as physicians. None were examined since 1922, however, when a separate osteopathic board was created.

Of the 143 Class C graduates licensed in Colorado, 69 were osteopaths who were licensed with the same privileges as physicians.

During the three years 1921 to 1923, inclusive, the Connecticut Eclectic Board certified for licensure 167 graduates of Class C colleges, including graduates of regular and homeopathic colleges as well as eclectic. None were licensed, however, in 1924.

Illinois, Massachusetts and Missouri are the homes of Class C medical colleges, which accounts for the larger numbers of Class C graduates licensed in those states.

Note that, in Missouri, 38 Class C graduates were licensed in 1923, due to the change in the practice law removing the word "reputable" as referring to medical colleges. The amendment, however, was repealed in 1923, so that only one Class C candidate was registered in 1924.

Of the 106 graduates of low grade institutions licensed in Texas during the six years, only 12 were licensed by examination, while 94 were licensed by reciprocity. Of those licensed, 47 were osteopaths who were licensed with full privileges as physicians.

The eclectic board had ceased to limit its acccptance of graduates to those from strictly eclectic colleges, but had accepted also graduates of homeopathic and regular schools. Note, however, that in 1924 no Class C graduate was licensed—a result of the diploma mill inquiry. In Illinois the numbers are larger or smaller as that state keeps fluctuating in its recognition of the Chicago Medical School, a typical Class C institution. In Massachusetts there are two Class C colleges—the board not having the authority to decide whether or not a medical school is "reputable." In Missouri, which harbors three of the Class C schools, the board persistently refused recognition to those schools until late in reports regarding diploma mills by the Connecticut special grand jury. In 1924, also, the total number of Class C graduates licensed was less than half the number licensed in any previous year.

REGISTRATION BY RECIPROCITY

Table K shows the numbers of physicians registered in 1924 without examination on presentation of satisfactory credentials, which included a license issued by some other state board or by the National Board of Medical Examiners. Some state boards—Arizona, California, Colorado, Delaware, Maryland, New Hampshire, New Jersey and North Carolina, as examples—accept a physician's credentials if satisfactory,

Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
	Total Regis. by Recip. Ea. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U.S.A., U.S.N., etc	Nat. Bd. Med. Ex.	U.S. Territories	Foreign
Alabama	25	..	..	..	..	..	..	..	..	4	..	..	2	1	..	..	..	5	..	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	5	1	..	..	1	..	..	..	..	..	..	..	..
Arizona	20	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	..	1	3	..	..	..	2	1	..	..	2	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1
Arkansas	19	1	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	3	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
California	388	3	2	2	..	9	..	..	..	..	3	5	62	15	20	11	4	5	1	7	12	8	15	1	16	18	22	6	1	1	1	26	1	3	13	7	9	16	1	2	4	7	5	9	1	2	8	1	5	1	14	..	3	..
Colorado	46	..	..	..	1	..	..	..	1	..	..	..	7	3	5	2	..	..	1	1	..	1	1	..	5	..	2	..	..	..	1	1	..	..	2	1	..	2	..	..	1	1	..	..	..	1	1	..	2	1	..	1	..	1
Connecticut	24	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	4	..	..	..	..	..	..	..	..	..	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaware	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Dist. of Col.	22	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	1	3	..	..	2	..	..	..	..	1	..	..	10	..	..	..	..	..	..	..
Florida	10	..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	20	2	..	..	1	..	..	..	..	7	..	..	..	..	1	..	..	..	..	2	..	..	1	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	1	..	..	..	..	..	..	..
Idaho	11	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	3	..	..	..	..	..	..	..
Illinois	68	..	..	5	..	..	..	..	..	..	2	..	..	4	5	1	4	4	..	6	..	6	2	4	8	..	2	..	..	..	..	..	..	1	3	..	2	..	..	..	1	..	..	..	1	1	4	..	3	1	..	..
Indiana	79	..	..	1	1	2	..	..	2	..	2	..	26	..	1	..	7	..	..	1	..	4	..	2	5	..	..	..	..	..	..	1	..	..	8	1	..	1	..	..	..	9	1	..	2	1	..	1	..	..	..	..	..
Iowa	42	..	..	1	2	..	..	..	..	..	..	..	12	..	..	3	..	..	1	..	..	..	2	1	2	..	14	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..
Kansas	43	..	..	..	..	..	..	..	1	..	..	..	9	2	4	..	1	..	..	..	..	..	2	..	3	..	11	..	..	..	..	..	..	1	2	1	..	2	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..
Kentucky	33	..	..	1	..	..	..	..	2	..	..	..	..	1	1	..	..	1	..	2	1	..	..	1	1	..	..	..	..	..	..	..	..	..	5	..	..	3	..	1	..	8	..	..	..	2	..	..	1	2	..	..
Louisiana	8	..	..	1	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..
Maine	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Maryland	15	..	..	..	..	..	..	..	2	..	1	..	3	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	1	..	..	..	..	1	..	..
Massachu'ts.	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..
Michigan	95	1	..	..	2	..	..	1	3	..	3	..	27	..	6	..	2	..	1	3	4	..	2	1	4	..	3	..	..	..	..	4	..	1	12	1	..	4	..	1	1	1	..	..	2	..	..	5	..	..	..	..
Minnesota	65	1	..	..	1	..	..	..	..	..	..	..	16	1	6	1	3	1	1	2	..	3	..	1	2	..	4	..	..	..	..	..	..	5	..	..	..	6	..	..	1	1	1	..	1	3	1	..	..	3	..	..
Mississippi	13	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..	1	..	..	1	..	..	..	..
Missouri	5	..	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Montana	8	1	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..
Nebraska	14	..	..	..	..	..	..	..	..	..	..	..	2	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	2	1	..	..	..	..	..	..	..	1	..	..
Nevada	16	..	..	2	1	..	..	..	..	..	..	3	2	..	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	1	..	1	..	..	..	..	..	..	..
N. Hampsh'e	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	6	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..
New Jersey	58	..	..	1	..	..	..	..	3	..	..	..	3	1	..	..	1	..	1	1	1	1	..	..	..	..	..	..	1	..	..	22	1	..	1	..	..	5	..	..	1	1	..	4	3	..	2	..	..	4	..	..
New Mexico	16	2	..	1	..	..	..	..	..	..	1	..	3	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	1	..	1	..	..	..	..	..	1	..	..	..	..	..
New York	44	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	10	..	..	2	..	6	..	4	..	..	1	..	6	..	..	3	..	..	5	1	1
No. Carolina	39	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	..	..	..	..	3	..	2	..	1	..	..	..	..	..	..	2	..	..	..	..	..	1	..	7	..	2	..	..	7	..	..	..	1	1	..	1
No. Dakota	12	..	..	..	..	..	..	..	..	..	..	..	3	1	..	1	..	1	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Ohio	133	2	..	..	3	1	..	..	1	..	..	..	9	6	3	3	13	..	..	5	..	23	5	2	6	..	2	..	..	3	..	6	..	..	..	3	..	15	..	..	..	7	..	1	1	..	12	1	..	..	..	..
Oklahoma	33	1	..	..	..	..	1	..	..	..	3	..	1	..	1	1	3	..	..	..	..	..	..	1	7	1	1	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	3	6	..	..	..	..	..	..	..	..	..
Oregon	16	..	..	..	..	..	..	..	..	..	..	4	4	1	1	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..
Penns'vania	41	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	2	2	..	..	..	..	..	..	1	..	4	..	..	1	..	..	..	..	1	..	..	1	1	..	..	3	..	..	..	2	20	..	..
Rhode Isl.	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
So. Carolina	7	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
So. Dakota	10	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
Tennessee	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Texas	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Utah	10	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..
Vermont	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Virginia	28	1	..	..	..	..	..	..	1	..	2	..	1	..	..	..	1	..	..	5	..	1	1	..	..	..	..	..	..	..	..	2	3	..	..	..	2	..	..	..	2	..	..	..	..	3	..	3	..	..	..	..
Washington	86	..	..	..	1	..	..	..	1	..	1	4	10	3	5	2	2	1	..	..	..	5	5	1	..	3	8	1	..	..	..	..	..	3	4	8	4	1	..	..	4	..	2	..	..	..	4	..	..	2	1	..
W. Virginia	23	..	..	..	..	..	..	..	..	..	4	..	..	..	1	..	1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	2	..	1	..	2	..	..	..	..	4	..	..	..	..	..	1
Wisconsin	87	..	..	..	1	1	..	..	..	..	2	..	34	..	4	..	2	1	..	1	1	5	7	..	1	..	3	..	..	..	..	1	..	1	2	1	1	4	..	..	3	1	..	..	..	..	..	..	9	1	..	..
Wyoming	16	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..
Totals	1787	17	2	15	16	16	2	1	17	8	55	18	248	42	73	30	46	27	11	55	31	64	59	26	63	28	80	8	5	16	4	92	10	18	73	20	18	82	1	17	16	70	35	16	16	44	19	24	27	3	34	49	5	5
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

This table shows the number of physicians registered by each state through reciprocity during 1924. Read from left to right, it shows the total number of physicians registered in the state named and the number of such candidates coming from each of the states named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom the total number of candidates leaving the state to go elsewhere. The line at the bottom shows in what states physicians who registered through reciprocity obtained their original licenses. The total number licensed by reciprocity was 1,787, or 357 less than in 1923.

TABLE L.—*Reciprocal Registration in Five Years (Showing What States Issued Original Licenses)*

State	Physicians Going from States Named During					Total
	1920	1921	1922	1923	1924	
Alabama	32	31	19	25	17	124
Arizona	6	8	12	9	2	37
Arkansas	58	33	43	50	15	199
California	23	23	28	30	16	120
Colorado	13	18	15	21	16	83
Connecticut	9	10	11	12	2	44
Delaware	6	10	12	5	1	34
District of Columbia	37	20	27	25	17	126
Florida	3	4	1	4	8	20
Georgia	47	40	34	58	55	234
Idaho	11	14	10	20	18	73
Illinois	367	304	246	276	248	1441
Indiana	52	50	44	49	42	237
Iowa	88	81	65	82	73	389
Kansas	65	54	41	52	30	242
Kentucky	68	56	40	51	46	261
Louisiana	43	40	33	50	27	193
Maine	16	26	14	14	11	81
Maryland	62	63	64	60	55	304
Massachusetts	59	31	38	37	31	196
Michigan	58	70	70	50	64	312
Minnesota	66	47	40	57	59	269
Mississippi	17	24	24	27	26	118
Missouri	143	158	126	120	63	610
Montana	17	41	23	29	28	138
Nebraska	71	48	57	75	80	331
Nevada	9	5	5	5	8	32
New Hampshire	5	10	7	5	5	32
New Jersey	27	15	25	9	16	92
New Mexico	3	3	3	6	4	19
New York	163	135	127	144	92	661
North Carolina	15	21	8	14	10	68
North Dakota	25	15	18	17	18	93
Ohio	98	58	70	62	73	361
Oklahoma	26	27	27	44	30	154
Oregon	18	6	26	20	18	88
Pennsylvania	123	92	90	118	82	505
Rhode Island	1	3	6	4	1	15
South Carol'na	11	10	24	21	17	83
South Dakota	15	11	9	12	16	63
Tennessee	102	91	75	68	70	406
Texas	33	43	34	54	35	199
Utah	22	21	17	12	16	88
Vermont	18	11	13	24	16	82
Virginia	59	52	46	43	44	244
Washington	23	27	37	34	19	140
West Virginia	41	18	24	18	24	125
Wisconsin	35	30	27	31	27	150
Wyoming	7	8	4	10	3	32
Army, Navy, P. H. Service	108	61	52	45	34	300
National Board of Medical Examiners	18	23	15	22	49	127
U. S. Territories and Possessions	8	2	8	3	5	26
Foreign and Misc.	8	8	10	11	5	42
Totals	2458	2110	1944	2144	1787	10443

This table shows that 10,443 candidates were registered through reciprocity during the last five years. Since 1919 there was a reduction each year, including 1922. In 1923 there was an increase of 200, but a reduction of 357 in 1924. It will be noted that 108 were registered in 1920 on the basis of military service, the numbers since being 61 in 1921, 51 in 1922, 45 in 1923 and 34 in 1924. Of the 10,443 registered during the five years, 1 141 obtained their original licenses in Illinois and only 661 in New York.

whether or not the state board issuing the original license returns the favor. Altogether, 1,787 physicians were licensed in 1924 on the basis of "reciprocity"—without being compelled to undergo a second trying examination.

Table L shows what state boards granted the original licenses of those registered elsewhere under the reciprocity provision during the last five years. Of the 10,443 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 1,441, who obtained their original licenses in Illinois. Although New York has a larger number of medical college graduates each year than Illinois, only 661 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is accounted for by the fact that Illinois has reciprocal relations with twenty-eight states, while New York has relations with only eight.

UNLICENSED GRADUATES

Table M shows the number of physicians in each graduating class since 1910 who have not yet received licenses from some state licensing board. Besides the total number of graduates each year, the numbers remaining unlicensed in 1923 are shown in comparison with similar returns for 1924.

TABLE M.—*Number of Medical Graduates in Each of the Years Given Who Have Not Yet Obtained Licenses to Practice*

Class of	United States Medical Schools					Canadian Medical Schools		
	Total Graduates	Still Unlicensed in		Failed at Exams.		Total Graduates	Still Unlicensed in*	
		1923	1924	Persons Failed	No. Times Failed		1923	1924
1910	4,440	38	20	2	6	308	4	4
1911	4,273	42	33	3	11	342	8	5
1912	4,483	28	22	5	8	268	6	6
1913	3,981	26	26	6	14	305	12	9
1914	3,594	32	30	10	33	321	15	10
1915	3,536	34	27	7	26	318	10	9
1916	3,518	52	52	15	38	206	15	7
1917	3,379	43	32	9	32	315	17	12
1918	2,670	61	49	12	36	270	39	11
1919	2,656	91	71	10	23	296	28	10
1920	3,047	75	63	14	30	251	34	9
1921	3,192	50	37	18	38	406	42	11
1922	2,529	129	114	35	59	434	118	51
1923	3,120	397	107	48	105	492	181	50
1924	3,562	...	403	32	36	645	...	158
Totals	51,960	1,008	1,092	226	495	5,172	529	302

* No information regarding failures of graduates before Canadian Boards.

It is seen that 409 obtained licenses during 1924, but that 403 of the class of 1924 who remain unlicensed are added, showing a total of 1,092 unlicensed graduates in 1924, six less than in 1923. The numbers of graduates of Canadian schools still unlicensed are also shown.

Of the 1,092 graduates in the United States who are still unlicensed (fifth and sixth columns), 226 have each failed at from one to thirteen separate examinations for licensure, making a total of 495 separate failures. It is interesting to know also—a fact not shown in the table—that 127 of the 226 are graduates of Class C medical schools. No data are available regarding the failures of Canadian graduates.

IMPROVED STANDARDS OF LICENSURE

Table N shows the states that have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states, and also the states that require a year's internship in a hospital. The first, third and fifth columns show, respectively, when the requirements affected students matriculating in medical colleges, and the second, fourth and sixth columns give the years in and after which all applicants for licenses are affected by the requirement. This table shows the rapidity with which requirements of preliminary education were adopted by state boards since 1908. Prior to that year, no state was requiring as a standard of preliminary education more than a four year high school education. There are now forty-three states which have adopted the higher standard and, of these, thirty-nine require two years of preliminary college work. It is understood that in every instance the one or two years of college work must have included courses in physics, chemistry and biology. Although "two years" of college work are specified, it is the content of those years which is asked for. That formula is used in the absence of a fitting term specifying the desired qualification. As shown in Table N and the footnotes, in the District of Columbia, Massachusetts and Wyoming, no standards of preliminary education have been legally authorized or adopted.

TABLE N.—*State Requirements of Preliminary Education*

There are now forty-two states (counting Alaska Ter.) which have adopted requirements of preliminary education in addition to a standard four-year high school education. Of this number thirty-nine now require the two year standard. Twelve states have adopted also the requirement of a hospital internship as an essential for the license. These states, and the time the higher requirements became or become effective are as follows:

State Examining Board of	One Year of College Work		Two Years of College Work		A Hospital Internship	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Applicants
Alabama	.....	....	1915-16	1919	.....	....
Alaska	1914-15	1918	1918-19	1922	1912-13	1917
Arizona	1914-15	1918	1918-19	1922	.....	....
Arkansas [1]	1915-16	1919	1918-19	1922	.....	....
California	1915-16	1919	.....	....	.....	....
Colorado	1908-09	1912	1910-11	1914	.....	....
Connecticut [1]	1911-12	1915	.....	....	.....	....
Delaware*	.....	....	.....	....	1923-24	1928
Dist. of Columbia†	.....	....	.....	....	.....	....
Florida	1914-15	1918	1918-19	1922	.....	....
Georgia	.....	....	1918-19	1922	.....	....
Idaho	.....	....	1915-16	1919	.....	....
Illinois	1915-16	1919	1918-19	1922	1918-19	1923
Indiana	1910-11	1914	1911-12	1915	.....	....
Iowa	.....	....	1911-12	1915	1918-19	1923
Kansas	1910-11	1914	1918-19	1922	.....	....
Kentucky	1914-15	1918	1918-19	1922	.....	....
Louisiana	1915-16	1919	1918-19	1922	.....	....
Maine	1915-16	1919	1816-17	1920	.....	....
Maryland	1914-15	1918	1918-19	1922	.....	....
Massachusetts†	.....	....	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922	1917-18	1923
Minnesota	.....	....	1908-09	1912	.....	....
Mississippi	1915-16	1919	1919-20	1923	.....	....
Missouri*	.....	....	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922	.....	....
Nebraska*	.....	....	.....	....	.....	....
Nevada*	.....	....	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919	.....	....
New Jersey	1915-16	1919	1917-18	1921	1911-12	1916
New Mexico	1914-15	1918	1918-19	1922	.....	....
New York	1917-18	1921	1918-19	1922	.....	....
North Carolina	1914-15	1918	1918-19	1922	.....	....
North Dakota	.....	....	1908-09	1912	1913-14	1918
Ohio	.....	....	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921	.....	....
Oregon	.....	....	1920-21	1924	.....	....
Pennsylvania	1914-15	1918	.....	....	1909-10	1914
Rhode Island	1914-15	1918	1918-19	1922	1912-13	1917
South Carolina	.....	....	1918-19	1922	.....	....
South Dakota	1908-09	1912	1911-12	1915	1920-21	1925
Tennessee	1916-17	1920	1918-19	1922	.....	....
Texas	1914-15	1918	1922-23	1926	.....	....
Utah	1913-14	1917	1922-23	1926	1921-22	1926
Vermont	1913-14	1917	1918-19	1922	.....	....
Virginia	1914-15	1918	1917-18	1921	.....	....
Washington	1914-15	1918	1918-19	1922	1914-15	1919
West Virginia	1917-18	1921	1920-21	1924	.....	....
Wisconsin	.....	....	1915-16	1919	.....	....
Wyoming†	.....	....	.....	....	.....	....

* Require a four-year high school education or its equivalent.
† No fixed standard.
1. The higher standards in Arkansas and Connecticut are evidently not enforced by the sectarian licensing boards of those states.

This year Table N is enlarged to show the twelve states in which an internship in a general hospital is required as an essential qualification for the license to practice medicine. There are now more than enough hospitals seeking interns to provide places for all graduates each year, so that other state boards would be justified in requiring all applicants to possess this additional qualification.

In Table O, the advances in standards of licensure are shown for all states since 1904. The most marked increase is in regard to the requirement of college work in forty-three states—referred to in Table N. An equally great increase

is shown in the number of states—now forty-six—which are refusing to recognize low-grade medical colleges. Two other states, Arkansas and Connecticut, could be added to the two lists referred to, were it not for the eclectic boards of those states which are still "recognizing" the inferior schools.

Although marked improvements have been made in state requirements for licensure, nevertheless, as indicated by the last column, room still remains for improvement. The greatest needs are for a wider adoption of the requirement of the hospital intern year, the standard of two years of premedical college work, and—a matter of more vital importance—a more general use of practical tests in the licensing examinations. The states in which the boards are making really effective use of such examinations are Illinois, Massachusetts, Minnesota, North Dakota, Ohio and South Dakota. That method is being followed to a certain extent in a few other states.

TABLE O.—*Advances in State License Requirements in Twenty Years*

Requirement or Provision	States Having Provision for			States Still Having No Provision for
	1904	1924	Increase	
Preliminary Education—				
Any requirement	20	45	25	5[1]
A standard four-year high school education or higher	10	45	35	5[1]
One year or more of college work	0	42	42	8[2]
Two years of college work as a minimum	0	39	39	11[2]
That all applicants be graduates of a medical college	36	49	13	1[3]
That all applicants undergo an examination for license	45	50	5	0
Hospital intern year required	0	12[4]	12	38
Full authority by board to refuse recognition to low-grade colleges	14	48	34	2[5]
Boards refusing to recognize low-grade colleges	5	46[6]	41	4[1]
Reciprocal relations with other states	27	45	18	5[7]
Single boards of medical examiners	36	45	9	5[8]

1. District of Columbia, Massachusetts, Wyoming and, because of sectarian licensing boards, Arkansas and Connecticut.
2. See Table N and footnotes.
3. Colorado.
4. Pennsylvania, 1914; New Jersey, 1916; Alaska, 1917; Rhode Island, 1917; North Dakota, 1918; Washington, 1919; Michigan, 1922; Illinois and Iowa, 1923; South Dakota, 1925; Utah, 1926, and Delaware, 1928.
5. District of Columbia and Massachusetts.
6. See Table D. In two states, Arkansas and Connecticut, each of which has three separate boards, only the regular (non-sectarian) boards have refused recognition to low standard medical colleges and have enforced higher standards of preliminary education.
7. Alaska, Connecticut, Florida, Massachusetts, Rhode Island. To this list should be added the outlying territories of Canal Zone and the Philippine Islands, which have no provision for reciprocity. Porto Rico has recently established reciprocal relations with New York.
8. Multiple boards still remain in Arkansas, Connecticut, District of Columbia, Louisiana and Maryland.

IN CONCLUSION

In the publication of these statistics, the endeavor has been to show the actual facts, a knowledge of which is always beneficial. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. We believe the information here published will be of service to the medical colleges and the state boards, as well as to the public.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was organized in 1915. It now consists of twenty-one members, including the three Surgeon Generals of the Army, Navy and Public Health Service, and one other representative of each of those services, three representatives of the state medical licensing boards and twelve members appointed at large. The personnel of the board at present is as follows:

Major-General Merritte W. Ireland, Surgeon General, United States Army, President; Rear Admiral Edward R. Stitt, Surgeon General, United States Navy; Surgeon General Hugh S. Cumming, United States Public Health Service; Commander Charles M. Oman, Col. Joseph F. Siler, Surgeon George W. McCoy, Dr. Walter E. Garrey, Dr. Horace D. Arnold, Dr. Walter L. Bierring, Dr. Allen B. Kanavel, Dr. David Strickler, Mr. John G. Bowman, Dr. A. C. Eycleshymer, Dr. Eugene L. Opie, Dr. Lewis A. Conner, Dr. J. M. T. Finney, Dr. W. S. Leathers, Dr. O. H. Perry Pepper, Dr. J. Whitridge Williams, Dr. Howard T. Karsner, and Dr. William E. Studdeford. The secretary-treasurer is Dr. J. S. Rodman, and the managing director is Mr. E. S. Elwood.

Up to Dec. 31, 1921, eleven examinations were held, as follows:

Date of Examination	Where Held	Total Examined	Passed	Failed	Percentage Failed
Oct., 1916	Washington	10	5	5	50.0
June, 1917	Washington	12	9	3	33.3
Oct., 1917	Chicago	28	22	6	21.5
Jan., 1918	New York	20	18	2	10.0
Apr., 1918	Ft. Riley, Ft. Oglethorpe	23	18	5	26.1
Dec., 1918	Chicago, New York	16	15	1	6.3
June, 1919	Philadelphia	52	51	1	1.9
Feb., 1920	Chicago, St. Louis	48	36	12	25.0
May, 1920	Philadelphia	60	46	14	23.3
Feb., 1921	Rochester, Minn.	16	11	5	31.3
June, 1921	Boston	40	37	3	7.5
	Totals	325	268	57	14.4

Following the completion of each examination shown in the table, those who passed were granted the board's certificate, a total by Dec. 31, 1921, of 268.

NEW METHODS ADOPTED

In 1922, however, the examinations were divided in three parts, as follows: Part I, a written examination in the six fundamental medical sciences: anatomy, including histology and embryology; physiology, physiologic chemistry; general pathology; bacteriology; materia medica and pharmacology. Part II, a written examination in: medicine, including pediatrics, neuropsychiatry and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene, and medical jurisprudence. Part III, a practical examination in each of the following four subjects: (*a*) clinical medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology; (*b*) clinical surgery, including applied anatomy, surgical pathology, operative surgery and the surgical specialties of the diseases of the eye, ear, nose and throat; (*c*) obstetrics and gynecology; (*d*) public health, including sanitary bacteriology and the communicable diseases.

Parts I and II are written examinations held in any Class A medical school, and Part III is entirely practical and clinical and given by subsidiary boards in Boston, New York, Philadelphia, Minneapolis, Iowa City, San Francisco, Denver, New Orleans, Baltimore, Galveston, Cleveland, St. Louis, Chicago, Washington, Portland (Ore.), and Nashville. The fee is $10 for Part I, $15 for Part II, and $50 for Part III.

EXAMINATIONS IN PART I

Three examinations in Part I were held in 1924, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February, 1924	129	117	3	9	6.9
June, 1924	282	174	43	65	23.0
September, 1924	180	124	23	33	18.3
Totals, 1924	591	415	69	107	18.1
1923	507	349	77	81	16.2
1922	388	263	58	67	17.3
Totals	1,486	1,027	204	255	17.2

Altogether, 591 candidates were examined in 1924, as compared with 507 in 1923 and 388 in 1922. During the last three years, under the new plan, 1,486 candidates were examined, or nearly five times as many as were examined in the six years of the old plan—from 1916 to 1921. Of all those examined in Part I during the last three years, 255, or 17.2 per cent., failed.

EXAMINATIONS IN PART II

Two examinations in Part II were held in 1924, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
June, 1924	194	172	...	22	11.3
September, 1924	73	55	...	18	24.6
Totals, 1924	267	227	...	40	14.9
1923	192	170	2	20	10.4
1922	109	90	...	19	17.4
Totals	568	487	2	79	13.9

During 1924, 267 candidates were examined in Part II, as compared with 192 in 1923 and 109 in 1922. Altogether, 568 candidates were examined during the three years, of whom nineteen, or 17.4 per cent., failed.

EXAMINATIONS IN PART III

The examinations in Part III in 1924, which were entirely clinical and practical, were held in several of sixteen subsidiary centers in different parts of the country. The results of the examinations were as follows:

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922	28	28	0	0.0
1923	76	75	1	1.3
1924	120	114	6	5.0
Totals	224	217	7	3.1

In 1924, 120 candidates were examined in Part III, as compared with seventy-six in 1923 and twenty-eight in 1922. During the three years, therefore, 224 candidates were given the final practical examination and, of these, only seven, or 3.1 per cent., failed.

IN GENERAL

Of the failures, it is noted that during the last three years, 17.2 per cent. of the candidates failed in Part I, 13.9 per cent. of the candidates failed in Part II, and 3.1 per cent. of the candidates failed in Part III. Of the 2,278 candidates examined in all three parts during the last three years, 341, or 14.9 per cent., failed.

Of those who took examinations in Parts I and II during the three years, 206 are listed as incomplete. These are candidates who took examinations in all but one of the subjects included in Parts I and II and are listed as incomplete until they have taken an examination also in the remaining subject. In the statistics, however, although mentioned separately, they are counted as successes and not failures.

Total Individuals Examined During Three Years

Year	Parts I, II and III, Excluding Duplications				
	Examined	Passed	Failed	Incomplete	Per Cent. Failed
1922	354	268	86	..	24.3
1923	555	453	102	..	18.4
1924	978	756	153	69	15.6
	1,887	1,477	341	69	18.1

Omitting duplicates, there were 978 different individuals who took the National Board's examinations during 1924, as compared with 555 in 1923, and 354 in 1922. The percentage of failures was 15.6 per cent., or less than in the two previous years. Altogether, 1,887 candidates participated in the National Board's examination during the three years since Jan. 1, 1922, and of these, 341, or 18.1 per cent., failed.

RECOGNITION OF THE NATIONAL BOARD'S CERTIFICATES

Holders of certificates from the National Board of Medical Examiners are registered without further examination in the following thirty-two states, the Canal Zone and Porto Rico.

Alabama	Kentucky	New Jersey	South Carolina
Arizona	Maine	New York	South Dakota
Canal Zone	Maryland	North Carolina	Tennessee
Colorado	Massachusetts	North Dakota	Texas
Delaware	Michigan	Oklahoma	Vermont
Georgia	Minnesota	Pennsylvania	Virginia
Idaho	Mississippi	Porto Rico	Washington
Illinois	Nebraska	Rhode Island	Wyoming
Iowa	New Hampshire		

A holder of the National Board certificate is eligible also for the regular medical corps of the United States Army and the United States Navy without further professional examination, if a review of his examination papers by the boards of examiners of those services is satisfactory. In 1920, a recommendation was adopted by the Triple Qualification Board of Scotland providing that holders of the National Board's certificate be admitted to its final examination, and in January, 1921, similar action was taken by the Conjoint Examining Board of London. The board's certificate, indeed, is gradually becoming recognized as a reliable evidence of qualification in medicine.

SUPPRESSION OF A DIPLOMA MILL

An institution with the mouth-filling title, "American University of Sanipractic," has existed in Seattle for several years. It has shifted from one location to another, its projectors recently purchasing a portion of a block in the residential district containing two spacious residences, one for the purpose of educating and producing sanipractors and the other as a sanatorium. Its career has recently been terminated by court action which has revoked the charter under which it has existed in the state of Washington. This action resulted from an investigation revealing that this has in reality been a diploma mill. Testimony was given that a diploma was obtainable for sums ranging from a few dollars to several hundred, depending on the financial possessions of the applicant. These diplomas were obtainable with a minimum of study or with no actual study whatever. Notwithstanding a total dearth of knowledge regarding the human body and its ailments, the diploma declared that its possessor was qualified to practice the art of sanipractic.

By reason of the fact that our liberal and generous legislators have granted examining boards for every imaginable sort of drugless healers, a sanipractic board was obtained for the purpose of issuing licenses to representatives of its kind. The question natuarally arises, how could these ignoramuses, possessors of these diplomas, qualify to pass an examination for a state license? Bless your soul, the simplest thing in the world. These accommodating sanipractic licensors were accustomed to present to the president of this "American University" copies of questions to be propounded to the seekers for licensure. These dumbbells were then coached on the questions for their forthcoming examination when, behold, they were able to successfully meet the requirements and were duly licensed to practice on our citizens.

This fountain of knowledge having been obliterated, the next question was how to suppress these bogus practitioners. Then appeared an illustration how enlightened and fair minded legislators can function for the protection of our citizens. Near the termination of the abbreviated session an act was passed, with opposition only from a body of drugless healers, delegating to the director of licenses the responsibility of investigating the previous records of all drugless healers licensed to practice in the state. If he is satisfied that anyone has obtained a license without a three years' course of study which is prescribed in the drugless healers act, he can forthwith cancel the license. It is stated there are over four hundred sanipractors in the state, of whom about one-third are possessors of these bogus diplomas. It is expected there will immediately be a sifting of these drugless healers through the department of licenses.

One cannot resist a word on the existence of such a farcial situation in this great state. Here is truly a commentary on the legislature and the influence exerted on its members a few years ago, when a wholesale licensing mania seemed to possess them, as a result of which various groups of applicants, representing every imaginable sort of healing, were granted the privilege of practicing upon its citizens. What has already occurred in this line probably cannot be remedied, but measures already proposed and in contemplation for future protection against ignorant practitioners should demand the support of all intelligent citizens.—*Northwest Medicine*, March, 1925.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 2, 1925

STATE LICENSURE STATISTICS

In this issue appears the twenty-second consecutive report of statistics based on state licensure examinations held during the previous calendar year. We express our appreciation of the cordial support from the secretaries of the licensing boards, all of whom cooperated, making possible the publication of the complete statistics.

ACCURACY OF DATA

The reports have been carefully checked with lists of graduates furnished by the deans of medical colleges; clerical errors have been corrected and the data published made accurate. Through this checking, impostors or possessors of fraudulent diplomas have been discovered in several instances and the attention of the state boards promptly called to them. Some impostors succeeded, by impersonation or otherwise, in passing the state board examinations; when the facts were discovered, the licenses were revoked. In this rechecking, the medical students' and physicians' registers have been of great service, and they in turn have been made possible through the hearty cooperation received from the deans of medical colleges.

VALUE OF THE STATISTICS

Publication of the successes and failures before state licensing boards of the graduates of a medical school shows whether improved methods of instruction are needed; a continued neglect of improvement may lead to the nonrecognition of the medical school by progressive state boards. The influence of these statistics is indicated by the larger numbers of medical colleges having low percentages of failures each year. Also the medical colleges fully recognized by state boards have increased from 29 per cent. in 1913 to 80 per cent. in 1925. These facts give evidence that the schools are turning out better qualified physicians.

The publication of these statistics has had much to do, also, with improvements in medical licensure. The attention drawn to inferior medical schools led to the withdrawing of recognition from them by the state boards. The legal requirements regarding the educational and professional qualifications of physicians, furthermore, were increased so as to equal the requirements of the better type of medical colleges in all but a few states. In the majority of states, therefore, the public is well protected against incompetent physicians, so far as the licensing of physicians and surgeons is concerned. The cults have, by their own claims, placed themselves outside the pale of medical practice laws, so the responsibility for them does not rest on the medical profession.

PUBLIC BETTER PROTECTED

Far better qualified physicians are now being provided in all but a few states; in these the medical practice laws are so defective that improperly qualified physicians are still able to secure licenses. The discovery of a diploma-mill ring in Missouri some time ago called attention to the fact that those who purchased diplomas in Missouri had to go half way across the continent—to Connecticut—before they could secure licenses. As shown in the statistics,[1] most of the state boards had already withdrawn recognition from the low grade medical schools before they were definitely shown to be diploma mills. Even if the diploma purchasers had actually attended and graduated in due course from these institutions, they could not have secured licenses in more than a few states—notably Arkansas and Connecticut. The medical practice laws in each of these states, unfortunately, provided for three separate and independent licensing boards; although reasonably efficient methods and standards of qualification were being upheld by the regular boards, the eclectic boards continued to license large numbers of "graduates" of inferior medical colleges—institutions known to be seriously lacking in teachers, laboratories and clinical facilities, and failing to observe reasonably high entrance requirements. These facts have been set forth in these statistics regularly for the last eight years.

WHERE BETTER LICENSURE LAWS ARE NEEDED

In Arkansas, during the last eight years, the board of eclectic medical examiners has been licensing from seventeen to sixty-three graduates of "eclectic" medical colleges annually, yet today only one bona fide eclectic institution exists in the United States. Most of the eclectic candidates licensed in Arkansas were "graduates" of the notorious Kansas City College of Medicine and Surgery, a nominally "eclectic" affair, which was involved with the Missouri diploma-mill ring—so mercilessly exposed late in 1923 by the St. Louis *Star*. The dean of this school was named as an active member of the ring. Revoke the charter of this medical school and the eclectic boards also will have little to do. Thanks to the sensation aroused by the exposure, the college named, although still holding its charter, was

1. Table D, pp. 1348, 1349.

prevented from "doing business" during 1924. It is significant to note also that the Arkansas Eclectic Board licensed but one candidate during the year, and that one a nongraduate. So long as Arkansas continues to have a faulty medical practice law, however, the state will continue to be the dumping ground of diploma purchasers or other unqualified output from any diploma mill or low grade affair which may label itself "eclectic."

Connecticut, also, has separate boards of medical examiners. Here again, however, fair standards are upheld by the regular board, but graduates of low grade colleges have been licensed by the eclectic board—a fact that has been shown in these statistics for the last eight years. The numbers of Class C graduates licensed by this board from 1917 to 1920[2] inclusive ranged from only one to five each year. Suddenly, however—in 1921—the number bounded to sixty-six Class C graduates, and to seventy-four in 1922. Something unusual had happened. Instead of limiting itself to graduates of bona fide eclectic schools, the eclectic board had thrown the doors wide open to various types of inferior and totally unqualified applicants.

INVESTIGATION BEGUN IN CONNECTICUT

Early in 1923, because of these statistics, an investigation was started in Connecticut, and the licenses of fifty-six physicians were revoked. The cleaning-up process in that state began, therefore, a few months before the exposure of the Missouri diploma-mill ring gave added impetus to the investigation. As an effect of the cleansing process, this year not one low grade applicant was licensed in Connecticut.

Altogether, the licenses of 167 physicians who had been certified by the eclectic board were revoked, but seventy-three of these have been allowed to continue in practice until their cases have been heard in court. Only five have thus far been heard in the superior court. The revocation of their licenses has been upheld, but an appeal has been made to the supreme court, thereby prolonging for the public the menace from these practitioners.

OTHER INVESTIGATIONS

A housecleaning in California has resulted in citations against twenty-five persons and the revocation of the licenses of a score or more of physicians. Another result has been the permanent burial, it is hoped, of the supposedly defunct diploma mill, the Pacific Medical College, which was an active adjunct of the diploma-mill ring operating in Missouri.

A thorough housecleaning is still in process in Missouri. Citations have been issued against forty or more persons, and the licenses of the diploma-mill ringleaders have been revoked. Whether the procedures will result also in permanently closing the local diploma mills remains to be seen.

2. Table J, p. 1353.

EFFECTS OF PUBLICITY

Publicity regarding the conditions of licensure in the various states is bringing good results.[3] All states have adopted higher standards of preliminary education, and in forty states this includes two years of college work; all states but one require every applicant to be a graduate of a medical school; all states require an examination of all applicants; all but two states have refused recognition to low grade medical colleges; all but six states have reciprocal relations with others; eleven states require a hospital internship as an essential for the license, and all but two states—Arkansas and Connecticut—have abolished separate independent boards of eclectic medical examiners. With the adoption of better medical practice laws in a few more states, the people of the United States will be safeguarded against incompetents, so far as physicians and surgeons are concerned. Other forces as well as medical must unite to check the menace from half-educated cultists who now presume themselves competent to treat the sick. These cultists have demanded exemption from the educational and professional qualifications required by medical practice laws: it is for the people to say whether they shall be exempted.

The solution to all medical licensure problems is simple: Provide in each state one board of competent examiners; establish one standard of qualification up to which every one should measure who is to secure the legal right to practice the healing art, and secure one board of competent examiners to carry out the provisions of the law.

WHEN THE LABORATORY SUCCEEDS IN MEDICINE

Any one familiar with the history of mental achievement is not likely to underestimate the value of the traditional knowledge that has been inherited from our ancestors. Before the days of experimental science in its modern form, unaided observation and the "half-conscious education which results from mere experience" were responsible for slow advances. In discussing the part played by science in the life of a nation, Lord Moulton has presented the case of empiric versus experimental procedures in a way that is well worth considering in the present period of "educational unrest." He remarks that in the earlier ages there appeared from time to time men who in a rude and unsystematic way carried out true experimental research. At the present day we can no longer wait for the slow results of casual discovery. The aim of those who would encourage research, Moulton continues, is to advance our knowledge of the world around us by the only way in which swift and assured progress can be made; namely, by experimental investigation in the hands of persons concentrating their attention on the problems on which they are engaged.

3. Table O, page 1356.

A retrospect of the last quarter century shows how truly such means may lead us to count confidently on success. Sometimes it is reassuring to have specific illustrations brought clearly to mind. There are outstanding ones, such as the development of the various antitoxins, the introduction of trypanocidal and anthelmintic drugs, the production and successful employment of insulin, and the prospect of other more effective chemotherapeutic substances which, when introduced through circulatory channels, may rid the living organism of parasitic bacteria. Such instances are striking because of their widespread importance or the profound influences that they may exert in difficult situations.

The glamour of conspicuous successes tends to dim other instances of important achievement that sometimes illustrate the value of the scientific method equally well. One was recently cited in THE JOURNAL [1] in connection with the treatment of tetany. A better understanding of the production of this condition has arisen through the advancing knowledge of what the acid-base equilibrium of the body may mean. Gastric tetany is associated with an alkalosis. This is a fact proceeding from scientific demonstration rather than from unaided bedside observation. Recovery from attacks of this sort is associated with a restoration to normal acid-base equilibrium.[2] An immediate inference, then, suggests the use of acid substances in the relief of the tetany. Biochemical research has enriched our knowledge in this connection by demonstrating that ammonium chlorid acts as a potential acid in the body, and it offers certain technical advantages of administration over solutions of mineral acids. The cases in which treatment with ammonium chlorid has been given have indicated its presumable value as a means of relief. Thus we have the chemical pathology of a familiar disorder, the indicated mode of rational relief, and a preferred chemical agent to accomplish the result—all finding application in wholesome ways. Furthermore, the scientific interpretations of the laboratory at once suggest the unwisdom of certain common methods of treatment at present in use. Gastric lavage, as Youmans and Greene point out, is frequently recommended. This procedure results in removing more acid from the stomach, and cannot help but increase the alkalosis. In fact, it has been noted clinically that attacks of tetany seem at times to be initiated by a gastric lavage, and similar observations have been made experimentally. Gastric lavage is therefore contraindicated. The quite common tendency to incorporate alkalis in the fluids given to combat the dehydration so commonly present (a tendency made quite probable in view of the possible presence of a ketonuria) may likewise result in treatment that would increase the alkalosis. Such illustrations may help to make biochemistry in modern medicine looked on with something better than what a recent critic has termed "an attitude of tolerance." [3]

1. Youmans, J. B., and Greene, I. W.: Gastric Tetany, J. A. M. A. **84**: 808 (March 14) 1925.
2. MacCallum, W. G.: On the Pathogenesis of Tetany, Medicine **3**: 137 (May) 1924.
3. Pearson, W. A., in discussion on Twenty-Five Years' Progress in Medical Education, J. A. M. A. **84**: 822 (March 14) 1925.

THE FOURTH OF JULY—A WARNING

Some of the costliest lessons learned by mankind are all too often either forgotten or relegated to "innocuous desuetude." Similarly, the fruits of hard fought battles and their most decisive victories may be lost or fade into insignificance with the growth of the indifference developed by our rapidly changing times. It requires the reminiscences of a Keen, recounting, as he recently has to hundreds of thousands of readers,[4] his personal experiences in three epidemics of that "most loathsome, nauseating, sickening disease," smallpox, to bring a nation back to the realization of the victory that Jenner's protective vaccination has meant for mankind. In the Philippines, when the United States took them over, there were about 40,000 deaths every year from smallpox. In the twelve months after Heiser completed his campaign of vaccination, not a single death occurred. Yet today, in various parts of the world, we are threatened with a recrudescence of the malady that once claimed its millions in death toll—because the lessons of the past are not adequately embodied in the practice of the day. There are all too many unprotected persons indifferent to the importance of being vaccinated.

After years of ardent effort, it seemed within the past decade that the lesson of the "safe and sane Fourth of July" had at last been learned. Month after month there were campaigns of education, in which THE JOURNAL joined with all the energy of a crusader, in the hope of averting the unnecessary deaths, the mangling of the human body, the personal pain and attendant misery, the appalling losses of property as well as of life that every celebration of Independence Day in the United States ushered in. As one observer has expressed the outcome, humane feelings brought in the safe and sane Fourth when accumulating casualties began to shock the American people. A statistician [5] has reported that 1,153 persons were killed and 21,520 injured in the United States in five old-fashioned celebrations from 1903 to 1907. Of the injured, eighty-five were totally and 389 were partially blinded; 808 lost arms, legs or hands, and 1,067 lost one or more fingers.

At length the propaganda for reform seems to have begun to bear fruit. Mutilations, tetanus, blindness and other pitiful misfortunes of accident have become far less common. One might suppose that the lesson had been learned; but there are threats that it may

4. Keen, W. W.: Personal Experience in Three Epidemics of Smallpox, Saturday Evening Post, Feb. 28, 1925, p. 51.
5. Editorial page, New York Times, March 6, 1925.

again be forgotten amid the acquired security of a temporary national sanity. The New York *Times*,[5] for example, has recently reported that a prominent politician is urging the return to an old-fashioned celebration that includes the worst "paraphernalia of peace-destroying noise." He demands an opportunity to let "youthful exuberance have its fling." Eternal vigilance seems to be the price of peace, even for the reformer. Can it be that we must take up again the defense of sanity in celebration?

Current Comment

PERMANENT SUPPRESSION OF DIPLOMA MILLS

The recent exposure of several diploma mills and the securing of definite evidence of their fraudulent nature has unfortunately not been promptly followed by their closure through legal process. The licenses of many persons to whom diplomas were sold have been revoked, but the machines still remain intact, ready for operation as soon as the present upheaval blows over. A recent report states that the charter of a pseudomedical institution bearing the high sounding title of the "American University of Sanipractic" has just been revoked at Seattle. This perhaps may encourage the authorities in Missouri to close the institutions selling medical diplomas in that state. Closing, however, will not prevent forever their flooding the country with counterfeit degrees, since as soon as one charter is revoked another can so easily be obtained. Perhaps the best method of suppressing such institutions in the future would be to prevent them from obtaining charters in the first place. It would seem that any group of persons, or even of conscienceless impostors, by paying a small fee, can secure a charter giving them authority to issue any and all kinds of diplomas, no questions being asked as to whether the institution is equipped, either educationally or financially, to furnish the education usually required. Furthermore, no legal check is kept on those securing charters to ascertain whether the educational institution has been actually established or whether it only has an office and is selling diplomas with or without a pretense at a course of instruction to cover up its irregular practices. By supervising the chartering of all schools and colleges, not only will the periodic scandals from the sale of diplomas be prevented, but also a lot of other so-called "schools," "colleges" and "universities" will cease to be born. One such institution, the Oriental University, made a pretense at "home study courses" and covered up its actual barter in degrees for a quarter of a century before its charter was revoked. The medical profession prevented it from selling medical diplomas and manufacturing bogus doctors in the United States, so it had to carry on its barter in such degrees in other countries. Because of the failure to safeguard the chartering of educational institutions, the United States has more of these worthless, fly-by-night "colleges" and "universities" than all other countries put together. Is it not time that our boasted freedom should cease to permit uneducated fakers to secure fabulous profits from the teaching of hocus pocus at tuition fees higher than are charged by the best medical schools? By reasonable safeguards over the chartering of educational institutions and a routine check on those which are chartered, much of this counterfeiting of diplomas would be prevented and the subsequent necessity of revoking licenses and of canceling charters would be unnecessary.

CLASSIFICATIONS AND APPROVED LISTS OF COLLEGES

The control of education in this country comes under the police powers of the several states. In the absence of safeguards over the chartering of educational institutions in all but a few states, thousands of colleges have been established, ranging from some of the highest type down to those which are diploma mills. Until about 1900, conditions were growing worse rather than better. In an attempt to improve the situation, the associations representing professions or groups of colleges established minimum standards of proficiency, and listed as approved such colleges as met those standards. Then in 1906-1907, the American Medical Association, through its Council on Medical Education, prepared a classification of medical colleges. At about the same time, between 1906 and 1908, the Carnegie Foundation for Advancement of Teaching prepared a list of colleges and universities in connection with its pension fund for university professors. In 1910, the Carnegie list and certain other colleges were placed by the Association of American Universities in a list of colleges whose graduates were recommended to the Prussian minister of education for matriculation in graduate courses in German universities. In 1911, Dr. Kendrick C. Babcock, specialist in higher education of the United States Bureau of Education, inspected most of the colleges of the United States and classified them in four groups. In 1913, the North Central Association of Colleges and Secondary Schools published its first list of approved colleges. A similar list was published by the Association of Colleges and Secondary Schools of the Southern States in 1920; by the Association of Colleges and Preparatory Schools of the Middle States and Maryland in 1921, and by the Northwest Association of Secondary and Higher Schools in 1922. Classifications of law and dental schools have also been prepared by the American Bar Association and the Dental Educational Council of America, aided in both instances by the Carnegie Foundation. These approved lists established a line of demarcation between colleges worthy of approval and those of inferior quality, including some that were actually fraudulent. These lists have been not only of great value to the student and various agencies needing information regarding the approved colleges, but also a powerful factor in the securing of further improvement, since colleges in lower classifications or which were not eligible for the approved lists were encouraged to make such improvements as were necessary to secure admission to those lists.

These associations made no claim of legal authority over the colleges but asked the college officials for their cooperation in securing exact data whereby the conditions in all colleges might be determined. A standard based on average conditions was then prepared, that the conditions in each institution might be compared with this standard. An interesting fact noted in these investigations has been the invariable courtesy extended by the officials of deserving colleges, their promptness in furnishing all needed data, and their readiness to receive, or actually to request, suggestions with regard to further improvements. The results of the work have established the fact that voluntary cooperation is far better than demands based on legal authority since, in the former, college officials do not stop improvements at minimum standards but go as much farther as they can. The approved lists were of greater reliability because they were prepared by the agencies best qualified to speak with authority with regard to the colleges concerned. Who, for example, is better qualified to speak regarding colleges and universities than the men selected by the associations of colleges and secondary schools? Who is more expert regarding law schools than the professors of legal education selected by the American Bar Association? So also, those in the best position to interpret the intricate problems of medical education are the physicians and medical educators cooperating with the American Medical Association. In a democracy such as the United States, with its fifty separate states, when the governing agencies fail to function, no agencies are better qualified to render voluntarily the needed service than the organizations that have so effectively separated the wheat from the chaff among the educational institutions in this country.

OSTEOPATHS SEEK FULL RIGHTS AS PHYSICIANS

When osteopathy was originated as a method of healing, it disowned any interest in or relationship with either the practice of medicine or medical education. In the appeals of osteopaths to legislators for the legal right to treat sick and injured people, the assertion was made that, since they were "not using drugs" and "not making use of surgery" they were, therefore, "not practicing medicine." For that reason they claimed—and successfully in some states—exemption from the requirements of preliminary and medical education invariably required of physicians. The licenses granted to osteopaths under such assertions were supposedly limited to treatment by the osteopathic or manipulative method. In recent years, however, the osteopaths have completely reversed their attitude and are demanding, not only the privilege of using narcotics—the most dangerous of drugs—but also the same rights of unlimited practice as are granted to qualified physicians. In no instance, however, in the bills presented to legislatures in which they asked for these unlimited privileges, is any clause found requiring them to possess premedical and professional qualifications equal to those required of physicians. If osteopaths desire privileges to practice as physicians and surgeons, why should they object to equal educational and professional qualifications? If, as is sometimes claimed, osteopathic colleges teach all subjects required in medical schools, why should not osteopathic schools be inspected and classified the same as medical schools? There is certainly no need of, or excuse for, two laws regulating the practice of medicine in any state, one providing low educational qualifications for osteopaths while another insists on higher qualifications that are considered essential for physicians. The people of each state have the right to expect that every person granted a license to treat the sick and to assume the responsibility for life or death should first be properly qualified to assume that responsibility.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Biennial Health Report.—There is a constantly increasing demand for health pamphlets in Arizona, according to the Biennial Report of the State Board of Health, which distributed 157,579 during 1924. The board adopted, March 12, 1924, the Standard Railway Sanitary Code as adopted by thirty-three other states in the Union and by the State and Provincial Health Authorities of North America. The code regulates the transportation of the sick, governs sanitary conditions on common carriers, and, among other things, denies transportation to persons having plague, cholera, smallpox, typhus fever or yellow fever. There are 116 registered midwives in Arizona, and a record of forty-nine who are practicing but not registered. This report contains an account of the events in chronological order which led to Arizona's quarantine against the foot and mouth disease in California.

State Medical Election.—Dr. George A. Bridge, Bisbee, was elected president of the Arizona State Medical Association at the annual meeting in Bisbee, April 16-18; Drs. Charles S. Vivian, Phoenix, Arthur C. Carlson, Jerome, and Willard Smith, Phoenix, vice presidents; Dr. Clarence E. Yount, Prescott, treasurer, and Dr. Delamere F. Harbridge, Phoenix, secretary. The next annual meeting will be in Globe. Dr. William Allen Pusey, President of the American Medical Association, with a committee from the Phoenix Chamber of Commerce, took a boat trip up the Salt River Gorge. Wednesday, Dr. Pusey was entertained at a reception and luncheon by the Maricopa County Medical Society; he addressed the Pima County Medical Society and the University of Arizona at a dinner in the evening; he read a scientific paper, Thursday, before the state association, and gave an address at the annual banquet, Friday.

ARKANSAS

Personal.—Dr. Edward C. Pyatt, Pine Bluff, has been appointed county health officer, to succeed Dr. Thomas W. Woodul.

Report of Health Department.—There were nineteen resident deaths from malaria in Little Rock in 1924, the largest number since 1916, and fourteen deaths from typhoid fever. The number of smallpox cases (seventeen) was larger than in any year since 1919. No cases occurred in school children, among whom compulsory vaccination is carried out. The infant mortality rate in Little Rock for the last six years (since the full-time health department was instituted) is 60 per thousand living births. The percentage of pasteurized milk used in the city has decreased from about 50 in 1919 to about 24 in 1924, and the number of dairies has more than doubled in the last six years. There was one death from diphtheria in 1924, a record first attained in 1922 and again in 1923.

CALIFORNIA

Captain Wieber Retired.—A luncheon was given, April 2, at San Diego by officers of the Naval Hospital in honor of Capt. Francis W. F. Wieber, formerly commanding officer of that hospital, who recently retired after more than forty years in the navy. A platinum watch was presented to Captain Wieber.

The "Great Ferdon" Convicted.—James M. Ferdon, the "Great Ferdon" of medical show notoriety, was convicted in Los Angeles, April 8, it is reported, of fraud in an oil promotion scheme and sentenced to pay a fine of $1,000 and to serve two years in the Leavenworth prison on each of two counts. Stay of execution was granted for thirty days to enable his attorneys to file an appeal.

Deaths from Whooping Cough.—The California State Board of Health has published the number of cases and deaths from whooping cough in the state in the last ten years. In one year only did the number of deaths fall below 100. The highest number of deaths was 401, in 1920. There were 314 in 1918, 324 in 1923, 282 in 1922, 200 in 1917, 197 in 1916, 191 in 1921 and 164 in 1924.

Society News.—Henry S. Pritchett, Ph.D., president of the Carnegie Foundation, and Francis V. Simonton, D.D.S., associate professor of operative dentistry, College of Dentistry, University of California, addressed the Santa Barbara County Medical Society recently on the mutual interests of the medical and dental professions and the work on pyorrhea done at the dental laboratories of the University of California, respectively.

GEORGIA

State Medical Meeting.—The Medical Association of Georgia will have its headquarters at the Biltmore Hotel, Atlanta, during the annual session, May 13-15.

Hospital News.—Clarke County has taken over the Athens General Hospital, at Athens, the funds having been obtained from the sale of $200,000 worth of bonds. Clarke County has also voted $50,000 for the construction and maintenance of a tuberculosis hospital.——The Junior Order of United American Mechanics has purchased the Lingo Hospital on Cooper Street, Atlanta, for $65,000 and will operate the institution.——Atlanta physicians have pledged themselves to raise $100,000 and to urge the city council and county commissioners to give an additional $200,000 to meet the terms offered by Jacob Elsas for the establishment of a pay ward at Grady Municipal Hospital.

ILLINOIS

Chiropractors Indicted.—R. D. Paul, Emmerson Brown and Mrs. Inez Brown, his wife, all of Sterling, and Lillian Walliker and Harold W. Mennenga, both of Morrison, chiropractors, were recently indicted by the Whiteside County grand jury on the charge of practicing without a license, it is reported.

Smallpox in Massachusetts, New York and Illinois.—The Illinois Department of Public Health states that there were 126 cases of smallpox reported in Massachusetts, 2,265 in New York, and 26,352 in Illinois in the six years ending Dec. 31, 1924. A compulsory vaccination law is enforced in Massachusetts and in cities of the first class in the state of New York. Vaccination in Illinois depends largely on moral suasion; there are many unvaccinated persons and much smallpox.

Society News.—Dr. Daniel M. Berkman, Mayo Clinic, Rochester, Minn., addressed the Rock Island and Scott County Medical Society, Moline, April 14, on gastric and duodenal ulcers, and Dr. Charles A. Elliott, Chicago, on goiter. Following these lectures, there were moving pictures featuring periodic health examinations. The following officers were elected: Dr. Arthur E. Williams, Rock Island, president; Drs. David R. Nelson, Moline, and Ralph W. Hardinger, East Moline, vice presidents; Dr. John H. Fowler, East Moline, secretary, and Dr. Clifford C. Ellis, Moline, treasurer.——Dr. Donald P. Abbott, Chicago, addressed the Elgin Physicians' Club, Elgin, April 13, on "Diseases of the Intestinal Tract."

Chicago

Personal.—Miss Maud Slye of the Otho S. A. Sprague Institute has been elected a foreign member of the Deutsches Zentral-Komitee zur Erforschung und Bekämpfung der Krebskrankheit of Berlin.

The Chicago State Hospital.—The largest institution for mental patients in Illinois is the Chicago State Hospital, Irving Park Boulevard and North Narragansett Avenue, which, April 3, had 3,017 patients and a personnel of 526. The majority of the patients require merely custodial care. According to the managing editor of *Hospital Management*, no means of restraint are used for these patients, the sole reliance in quieting disturbed patients being hydrotherapy. The hydrotherapy department is operated on a twenty-four hour basis and has thirteen continuous baths. During February, hydrotherapy treatment for male patients amounted to 2,192 bath hours, and for female patients, 6,048 bath hours.

INDIANA

Physician Honored.—The Wabash Medical Society recently presented a watch to Dr. Perry G. Moore, Wabash, on the occasion of his eightieth birthday. Dr. Moore has practiced in Wabash for fifty-nine years, longer than any other physician in the county.

New Health Center.—A health center at Evansville, established in the Municipal Building under the auspices of the Visiting Nurse Association and the Babies' Milk Fund Association, was formally opened, March 18, and was attended in the evening by a dinner for the official boards of the various public health and social organizations, city officials, the county medical society and the chamber of commerce, following which the state health commissioner, Dr. William F. King, gave an address at the health center on "The Problems of Public Health."

IOWA

Society News.—Dr. William Engelbach, St. Louis, addressed the Linn County Medical Society, Cedar Rapids, April 9, on "The Diagnosis and Treatment of the Internal Secreting Glands," and Prof. Victor C. Myers, head of the department of biologic chemistry, University of Iowa, on "The Clinical Value of Chemical Examination of the Blood."——Dr. Anton J. Carlson, professor and chairman of the department of physiology, University of Chicago, addressed the Des Moines Academy of Medicine, April 10, on "The Problem of the Endocrines."

KANSAS

No New Buildings at Rosedale.—The last legislature made no appropriations for new buildings for the University of Kansas Medical School at Rosedale, and since the chancellor has conveyed to the members of the ways and means committee of the house of representatives and the senate that ultimately the medical school would have to be moved to Lawrence, the *Journal of the Kansas Medical Society* considers it probable that no further appropriations will be made for the plant at Rosedale.

State Medical Meeting.—At the fifty-ninth annual meeting of the Kansas Medical Society, Topeka, May 5-7, the guests of honor will be Dr. Albert R. Mitchell, Lincoln, Neb., a trustee of the American Medical Association, who will speak on "Men and Medicine"; Dr. Harry M. Richter, Chicago, "Some Phases of Gastric Surgery"; Dr. Frank M. Smithies, Chicago, "Modern Conception of Peptic Ulcer"; Dr. Martin F. Engman, St. Louis, "Humoral Eruptions"; Dr. Curran Pope, Louisville, Ky., "The Physiotherapeutic Treatment of Colitis"; Dr. Horace R. Allen, Indianapolis, "Club Feet," and Dr. Edwin P. Sloan, Bloomington, Ill., "Medical, Roentgen-Ray and Surgical Treatment of Goiter." The general sessions will be held in Representative Hall, and those of the house of delegates and meetings of the council in the Senate Chamber. The Shawnee County Medical Society will act as host at a smoker and entertainment, Wednesday evening.

LOUISIANA

Castellani Visits New Orleans.—Dr. Aldo Castellani, professor in the London School of Tropical Medicine and an authority on tropical diseases, is visiting Tulane Medical School, New Orleans, the guest of the dean, Dr. Charles C. Bass. Professor Castellani gave an address in New Orleans, April 29, at the Hutchinson Memorial, and with Dr. John H. Musser, Jr., professor of medicine at Tulane, Dr. Bass and Dr. Oscar Dowling, president, state board of health, visited the National Leprosarium at Carville.

Junior League Fellowships at Tulane.—The dean of Tulane University Medical School, New Orleans, has accepted the

offer of the Junior League to establish two fellowships in obstetrics and one in pediatrics at that school with the proceeds ($5,600) of a recent revue. The fellowships will be granted to senior interns for two years, but the league plans to make the endowment permanent. The *Times Picayune* says that the league's gift assures the establishment of a model clinic for the benefit of expectant mothers and babies, and thus the league makes a notable addition to its list of good works.

MASSACHUSETTS

Hearing on Vaccination.—At the hearing on vaccination in February, the experience of California in relaxing the vaccination laws was recounted by Senior Surgeon Claude C. Pierce, U. S. Public Health Service. He said that until 1911 there was a law in California requiring school children to be vaccinated; in that year it was amended so that the children of "conscientious objectors" might attend school unvaccinated. Two years after (1913) there were fifteen deaths and 803 cases of smallpox in the state. In 1918 there were 1,016 cases. In 1919 there were 2,000 cases, and the number continued to increase each year. The entire vaccination act was repealed in 1921, and in 1924 California had 9,425 cases of smallpox, with fifty-one deaths. Reducing these figures to a case rate per thousand population, the case rate for 1915-1920 ranged from 0.08 to 1.30, with an average of 0.44 for the period. The case rate for 1924 was 2.4. Dr. Pierce said that there are available data to show that smallpox remains the most widely distributed plague in the world.

MINNESOTA

Child Guidance Clinic Continued.—The board of education of Minneapolis has voted unanimously to continue the Child Guidance Clinic, which was organized in September, 1924. Among other organizations favoring the continuance of the clinic were the Hennepin County Medical Society, the juvenile court, the Parent-Teacher Association and the social agencies. The clinic is held at Lymanhurst Hospital, having on its staff a psychiatrist, a psychologist and two psychiatric social workers.

Society News. — Dr. Russell M. Wilder, Rochester, addressed the Minnesota Pathological Society at the University of Minnesota recently on "Studies in the Metabolism of Diabetes"; Dr. Horatio B. Sweetser, Minneapolis, on "Splenectomy in Purpura Hemorrhagica with Report of a Case," and Drs. Elexious T. Bell and Benjamin J. Clawson on "Experimental Glomerulonephritis in Monkeys." —— Dr. Elexious T. Bell, professor and director of the department of pathology, University of Minnesota School of Medicine, Minneapolis, addressed the St. Louis County Medical Society at Duluth recently on "Bone Tumors."

MISSOURI

"Cancer Specialist" Arrested.—Ida May Martin, who claims to have come from Sacramento, Calif., recently, was arrested at the home of a patient in St. Joseph, April 15, on a charge of practicing medicine without a license, it is reported. The defendant is said to have treated several cases of cancer. She was held under $1,000 bond.

Hospital News.—Mrs. S. E. Woodstock has donated funds to establish a clinic at St. Luke's Hospital, Kansas City, in memory of her husband.——Dr. Logan L. Latham has purchased the John M. Williams home, California, and will erect a $30,000 sanatorium there, using the home as a residence.——Dr. Porter E. Williams, St. Joseph, has resigned as superintendent of State Hospital No. 2 and been succeeded by Dr. James H. Parker of State Hospital No. 4, Farmington. Dr. Parker has been succeeded by Dr. Emmett F. Hoctor, superintendent of State Hospital No. 5 at Nevada. Dr. James W. Burton, superintendent of the state sanatorium at Mount Vernon, will succeed Dr. Hoctor.

NEW JERSEY

Gift to Convalescent Home.—The erection of a Jewish Seaside Home on the site of the present institution at Atlantic City is made possible by a gift of $50,000 from Joseph H. Greenberg, an ex-president of the Jewish Maternity Hospital, Philadelphia, and of the Seaside Home. The gift is in memory of Mr. Greenberg's mother.

Society News.—Dr. Thomas McCrae, Magee professor of practice of medicine and clinical medicine, Jefferson Medical College, Philadelphia, addressed the Gloucester County Medical Society, Pitman, recently on "Heart Disease."——Dr. Haven Emerson, professor of public health administration, Columbia University College of Physicians and Surgeons, New York, addressed the Hudson County Medical Society, Jersey City, recently, on "Periodic Health Examinations."—— Dr. Howard Lilienthal, New York, recently addressed the Passaic County Medical Society, Paterson, on "Some Medical Aspects of Thoracic Surgery."

NEW YORK

Pianos for the Tuberculous.—As the result of a recent appeal to the public from the Hospital Service of the New York Tuberculosis Association, thirty-four pianos have been secured for the entertainment of patients in tuberculosis institutions.

Society Approves Brooklyn Eagle's Campaign.—The Medical Society of the County of Kings, through its medical press reference committee, has taken action approving the publicity campaign of the Brooklyn *Eagle*, which insists that, before undertaking "physical culture," persons should undergo a thorough physical examination by a competent physician.

Child Welfare Conference.—A national child welfare conference will be held in New York, May 15-20, under the auspices of the Child Welfare Committee of America. Ways and means looking to the enactment of child welfare legislation in the six states which have none on their statute books, and the standardization of existing laws, will be the principal topics of discussion.

Personal.—Dr. Raymond F. C. Kieb, superintendent of the State Hospital at Matteawan, has been appointed a delegate to the International Prison Conference, to be held in London, August 3-10.——Dr. Leo Muller of the University of Liége, Belgium, who has been engaged in research work at the Rockefeller Institute, has returned home.——Dr. M. A. Goldzieher, professor of pathology at Budapest University, has arrived in the United States to engage in research.——Dr. Robert E. Plunkett, Troy, has been appointed director of the division of tuberculosis of the state department of health to succeed Dr. Jonathan Pearson, Schenectady.

Milbank Convalescent Farm.—Through the generosity of Dunlevy Milbank, a large farm overlooking Kensico Reservoir has been given to the Children's Aid Society to provide convalescent care for 16 year old boys. Hill-Top Farm, as the new institution is called, was opened, May 1. The gift of the land and home is made in the belief that the public will contribute $25,000 yearly for its maintenance. The Elizabeth Milbank Anderson Home at Chappaqua admits girls and small boys. Frequent medical examinations are given to every one of the 7,000 handicapped children who attend the schools of the society in New York, and those needing additional care are sent to the homes.

New York City

Health Department Prosecutions.—According to a report of the health commissioner, the city health department prosecuted 22,481 cases in criminal courts during 1924, and $103,217 in fines was imposed for violations of the sanitary code.

Testimonial Dinner.—The Howard Medical Reading Club of New York gave a testimonial dinner, April 17, in honor of Dr. Edward A. Balloch, who has been connected with the Howard University School of Medicine, Washington, D. C., since 1880, serving as dean since 1910. Dr. Balloch was presented with a watch. Among the invited guests were Senator Royal S. Copeland, New York, and Dr. Michael O. Dumas, Washington, D. C., president of the National Medical Association.

Cancer Research Journal.—The first issue of the *Archives of Clinical Cancer Research*, a quarterly of the New York City Cancer Institute of the Department of Public Welfare, was published, April 12. Members of the editorial board are: Drs. Charles H. Mayo, Willy Meyer, Arthur C. Christie, Burton T. Simpson, Barnet Joseph and Isaac Levin, the last named being editor. The publications accepted for the *Archives* will represent the clinical investigations of pathologists, diagnosticians, surgeons and radiotherapists.

Personal.—Dr. Seth M. Milliken has been appointed surgical director and Dr. Maximin D. Touart medical director of the Reconstruction Hospital.——Dr. Moses Joseph Mandelbaum has been appointed attending otolaryngologist to the Hospital for Joint Diseases. —— Dr. Hideyo Noguchi,

Rockefeller Institute for Medical Research, has been elected a corresponding member of the Sociedad Medica de Caracas, Venezuela.——Dr. Wilhelm Kolle, professor of medicine, University of Frankfort-on-the-Main, and director of the state institute of experimental therapeutics, addressed the scientific staff of the Rockefeller Institute for Medical Research, New York, April 17, on "Some New Facts in Regard to Drug Fastness."——Dr. Louise Pearce, associate member of the Rockefeller Institute for Medical Research, has been elected a fellow of the Royal Society of Tropical Medicine and Hygiene.——Dr. Alphonso G. Castelli, for twenty years a practitioner of this city, has moved to Rome, Italy.——Dr. Herman Shann has been appointed attending surgeon to the Brooklyn Jewish Hospital.——Dr. Philip R. Lehrman has been appointed in charge of the psychanalytic department at Manhattan State Hospital, Ward's Island.

NORTH CAROLINA

Personal.—Dr. Joseph H. Norman, Raleigh, has been elected physician to the state penitentiary at Raleigh. The new board of directors has combined the duties of warden with those of physician.——Dr. William deB. MacNider, Kenan professor of pharmacology, University of North Carolina, has been honored recently by the appointment at the Harvard Medical School for a week as physician-in-chief, Peter Bent Brigham Hospital. During Dr. MacNider's short stay in Boston, he will deliver three lectures at Harvard on his recent studies on renal physiology and pathology.

University Postgraduate Courses.—Arrangements have been completed by the University of North Carolina for the summer postgraduate courses in pediatrics. Drs. Jean V. Cooke and Alexis F. Hartmann of Washington University School of Medicine, St. Louis, will conduct the classes in the western circuit, and Dr. Wayne A. Rupe, also of Washington University School of Medicine, will conduct the classes in the eastern circuit, the latter being conducted in Selma, Goldsboro, Kinston, Newbern, Washington, Greenville, Tarboro, Rocky Mount and Weldon. More than sixty physicians advised the director of their intention to attend these courses even before the announcement was made (THE JOURNAL, April 11, p. 1129).

OHIO

Society News.—Dr. Albert A. Berg, Mount Sinai Hospital, New York, recently addressed the Marion County Medical Society on "Why Operations for Gastric Ulcer Are Not Successful."——Dr. Albert E. Bulson, professor of ophthalmology, Indiana University School of Medicine, Indianapolis, and editor of the *Indiana State Medical Journal*, addressed the Summit County Medical Society, March 10, at Canton, on "Socializing Medicine."——Dr. Orry C. Morrison, Carroll, Iowa, addressed the Marion County Medical Society, Marion, April 7, on "Service Before Self."

Fellowship in Experimental Medicine.—Dr. Alfred Friedlander and wife have provided for the establishment of a fellowship in experimental medicine at the University of Cincinnati, which will pay $600 a year for three years, the fellow to be appointed by the head of the department of internal medicine and approved by the directors.——A special library on internal medicine will be founded at the Cincinnati General Hospital with funds contributed by relatives, friends and associates of the late Dr. David S. Hachen, who was an instructor in the College of Medicine.

OREGON

State Society Invests in Bonds.—The Oregon State Medical Society and the Oregon Public Health League have closed the most successful year in their history, according to the league's *Bulletin*. They have a larger membership than ever before, are out of debt, and have invested during the last year more than $7,000 in government bonds.

Hospital News.—Dr. John J. Sellwood has sold the Sellwood Hospital, Portland, to Dr. Linford S. Besson and his associates. The hospital, which contains seventy beds, will have the addition of a special cancer and a maternity ward in the near future. New equipment will also be purchased.——The Springfield General Hospital has been taken over by the county for the exclusive use of county patients until the county farm is able to care for them.——North Bend has purchased 40,000 pills containing iodin as a preventive of simple goiter in its school children.

PENNSYLVANIA

Society News.—Dr. Cornelius C. Laffer, Meadville, for thirty years secretary of the Crawford County Medical Society, has resigned and been succeeded in that office by Dr. John W. Hazen, Meadville.

Sixteen Deaths from Measles.—The department of public health of Pittsburgh reports that there were 1,632 cases of measles in that city in March, as compared with ninety-four in March of last year; 360 cases of scarlet fever, compared with 163 in March of last year, and that the number of deaths from these diseases was sixteen as compared to one in March, 1924, and five from scarlet fever as compared to three in March, 1924.

Philadelphia

Volunteer Health Lecturers.—The department of public health has organized a corps of volunteer health lecturers to meet the demand for speakers. Twenty-six physicians have volunteered their services.

Prince Inspects Hospital.—The Prince of Chandaburi, a brother of King Rama VI of Siam, and his attaché, inspected Jefferson Hospital, April 20. King Rama was a contributor to the centennial campaign fund.

Society News.—Dr. George David Stewart, New York, was the guest of the College of Physicians of Philadelphia, recently, when he opened the discussion of Dr. John B. Deaver's paper on "Fifty Years of Surgery."——Dr. Joseph Earle Moore, Baltimore, addressed the Section on Medicine of the College of Physicians, April 27, on "Results in Treatment of Early Syphilis."——Mr. Basil Graves of London, England, delivered the twenty-third annual Rush Society lecture on "Microscopy of the Living Eye," in the College of Physicians, April 29.

SOUTH CAROLINA

State Medical Election.—At the annual meeting of the South Carolina Medical Association, Spartansburg, April 21-23, Dr. Robert S. Cathcart, Charleston, was elected president; Drs. William B. Lyles, Spartansburg, Joseph H. Cannon, Charleston, and Robert C. Bruce, Greenville, vice presidents, and Dr. Edgar A. Hines, Seneca, secretary-treasurer (reelected). Drs. Frank M. Lander, Williamston, and Joseph T. Taylor, Adams Run, were reelected to the board of medical examiners. A special feature of the meeting was the periodic health examination of physicians in attendance. The invited guests were Drs. Stewart R. Roberts, Atlanta, Ga., and Irvin Abell, Louisville, Ky. The next annual meeting will be at Sumter, the third Tuesday in April, 1926.

SOUTH DAKOTA

Crippled Children.—A survey has been made in South Dakota which shows that eleven counties report no needy crippled children, but that in thirty-two other counties there are 127 such children. The state has recently appropriated $4,000 annually to help its crippled children, and surgical treatment by orthopedic specialists is being secured for all children who need it.

TEXAS

State Medical Meeting.—Among the visiting speakers at the fifty-ninth annual session of the State Medical Association of Texas, Austin, May 5-7, will be Dr. Charles C. Browning, Los Angeles; Dr. Oscar Dowling, state health officer of Louisiana; Dr. Lucien LeDoux, New Orleans; Drs. Russell D. Carman and Louis A. Buie, Rochester, Minn.; Dr. William C. Finnoff, Denver; Dr. Henning Koford, Berkeley, Calif., and Dr. Kenneth F. Maxcy, U. S. Public Health Service. The opening exercises will be in the senate chamber of the state capitol, and the general meetings at the Stephen F. Austin Hotel. A memorial service will be conducted by Dr. David M. Higgins, Gainesville, chairman of the committee on memorial exercises, at the First Baptist Church, Tuesday evening. The president's reception and ball will be Wednesday evening at the roof garden of the Stephen F. Austin Hotel.

VIRGINIA

Society News.—The annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology will be at Winchester, May 7, under the presidency of Dr. James Morrison, Lynchburg. The guests of honor will be Drs. William Zent-

mayer and James A. Babbitt, both of Philadelphia, and Dr. Harry S. Gradle, Chicago. There will be a symposium on cataract led by Dr. Joseph A. White, Richmond, and Dr. Halstead S. Hedges, Charlottesville. Dr. Hunter H. McGuire will tender a luncheon at his residence, after which the members will drive through the Valley of Virginia.

WASHINGTON

Proposed Amalgamation of State Society and Public Health League.—At the 1924 meeting of the Washington State Medical Association, the secretary was directed to forward to each county society the report of the committee that investigated the "Oregon Plan." In accordance with this report, amendments to the by-laws of the state medical association have been proposed, which would accomplish the following: A field director to represent the association before the county societies would be added to the officers. The field director would become the executive secretary of the Public Health League, and his selection or appointment would be denied the state medical association. Another amendment would raise the annual dues to $20, $3 of which would be retained by the state medical association and $15 remitted to the secretary-treasurer of the Public Health League, in consideration of which the executive secretary of that league would serve as field director of the state medical association. The board of trustees of the state medical association moved to reject this plan. It would destroy, they said, the object of the league—that of keeping the state medical association out of politics. The trustees also raised the question whether it would be legal to make an additional qualification for membership in the state medical society since that body was incorporated as part of the American Medical Association. Some action will be taken at the coming annual meeting.

WEST VIRGINIA

What Will the Governor Do?—A bill providing for the licensing of chiropractors in West Virginia has passed both houses of the legislature. Its fate rests now with the governor.

Society News.—Dr. George W. Crile, Cleveland, recently addressed the Ohio County Medical Society, Wheeling, on "Certain Points in Abdominal Surgery," with motion pictures; Dr. Herman H. Hoppe, Cincinnati, on "Neurasthenia," with lantern slides, and Dr. Charles Bagley, Jr., Baltimore, on "Brain Abscess."

WISCONSIN

Smallpox in Milwaukee.—There have been sixteen deaths from smallpox in Milwaukee in the last three months, and in the thirty years previous to that time only twelve.

Society News.—At the meeting of the Medical Society of Milwaukee County, April 10, Dr. Joseph Lettenberger reviewed the necropsy findings in 400 cases of sudden death; Dr. Roland S. Cron gave an illustrated talk on "The Two Flap Low Cesarean Section"; Dr. Charles E. Ide spoke on "Inorganic Dust as a Factor in Pulmonary Disease," and Dr. John M. Beffel on "A Case of Osteomalacia."——The Dane County Medical Society and the University of Wisconsin Medical Society recently held a joint meeting, at which Dr. Benjamin H. Hager, associate professor of surgery, spoke on "Etiology of Encrusted Cystitis," and Dr. A. S. Crawford on "Some Problems in Neurosurgery."——Dr. Peter Bassoe, Chicago, addressed the Dane County Medical Society, Madison, March 17, on "Diagnosis and Treatment of Brain Tumors," and Dr. Charles R. Bardeen, Madison, dean of the University of Wisconsin Medical School, addressed the Milwaukee County Medical Society, March 13, on "Development of the University of Wisconsin Medical School."

CANADA

Hospital News.—The Catherine Booth Mothers' Hospital, Montreal, was recently opened and will take the place of the hospital in Outremont, which will close for the present and later be reopened as a children's hospital. The new hospital will be for poor mothers, and there will be no charges. It contains forty-five beds, and is a thoroughly modern institution.——The new Rosemount Hospital, Montreal, having a capacity of twenty beds, was recently opened to receive all but contagious cases.——The new Shriners' Hospital for Crippled Children on the mountain side, Montreal, having a capacity of fifty beds, was formally opened, March 15. The surgical work will be in charge of Dr. A. Mackenzie Forbes.

GENERAL

Award of Mary Pemberton Nourse Fellowship.—At the annual convention of the American Association of University Women, Indianapolis, April 8, it was announced that the first award of the Mary Pemberton Nourse Memorial Fellowship for Public Health had been awarded to Miss Martha Koehne (A. M., Ohio State University), who will conduct research in nutrition at Yale University, New Haven, Conn. The fellowship amounts to $1,500.

Pharmaceutical Research Workers.—At the direction of the National Conference on Pharmaceutical Research, a census has been made which resulted in recording the names of 239 pharmaceutical research workers, who may be classed as follows: hospital pharmacists, 3; retail pharmacists, 10; pharmacists engaged in medical school and chemical school work, 16; governmental scientists doing pharmaceutical research, 19; nonpharmaceutical teachers and their students doing pharmaceutical research (chiefly on the synthesis of medicinal chemicals), 28; manufacturing pharmacists, 72; pharmaceutical teachers and their students, 91. The list will be published in the *Journal of the American Pharmaceutical Association*, a copy of which will be sent on request to any one writing H. V. Arny, chairman, National Conference on Pharmaceutical Research, 115 West Sixty-Eighth Street, New York. The list covers the great laboratories and the simple dispensing rooms of retail pharmacies. It is expected that a census of this kind will become an annual affair.

Society News.—Prof. T. Wingate Todd, Western Reserve University School of Medicine, Cleveland, and Dr. J. Parsons Schaeffer, Jefferson Medical School, Philadelphia, were elected members of the executive committee at the annual meeting of the American Association of Anatomists, Cleveland, April 9-11. The officers remain as before, Dr. Florence R. Sabin, professor of histology, Johns Hopkins University Medical Department, Baltimore, president; Dr. Arthur W. Meyer, professor of anatomy, Stanford University School of Medicine, San Francisco, vice president; and Dr. Lewis H. Weed, dean, Johns Hopkins University Medical Department, Baltimore, secretary-treasurer (THE JOURNAL, May 3, 1924, p. 1452).——The forty-ninth annual session of the American Association for the Study of the Feeble-Minded will be held in Raleigh, May 8-11, at the Hotel Sir Walter, under the presidency of Dr. Groves B. Smith, Detroit. The annual dinner will be held Saturday evening, May 9, at which the president will deliver an address.

Clinical Instruction in Leprosy.—The senior class of Tulane University Medical School, New Orleans, and part of the faculty, recently visited U. S. Marine Hospital No. 66 (National Leper Home), Carville, La., where a clinic was held. The 249 patients offer much for clinics, and it is proposed to make Tulane's visit an annual event. There is a growing conviction that considerable numbers of lepers are at large and unrecognized throughout the United States. Practitioners in any country where leprosy is a rare disease are generally so unfamiliar with leprosy that it is not readily recognized. By the very rarity of the disease, its eradication is in some measure delayed, because it is undiscovered. The necessity cannot be too strongly urged on all practitioners in the United States to familiarize themselves with the clinical aspect of leprosy in order that they may recognize a case when it comes under observation. Leprosy could probably be eradicated in the United States in a relatively short time if the facilities for the segregation of lepers that are now available at Carville could be immediately utilized.

American Heart Association.—This association will meet at Haddon Hall Hotel, Atlantic City, 2 p. m., May 26, under the presidency of Dr. Lewis A. Conner. Dr. John D. McLean, Harrisburg, Pa., will discuss "Public Health Aspects of Heart Diseases"; Dr. Joseph Sailer, Philadelphia, "The Care of Adults with Moderate Heart Disorder"; Dr. James G. Carr, Jr., Chicago, "Economic Aspects of Heart Disease"; Dr. Robert H. Halsey, New York, "What Can the American Heart Association Accomplish"; Dr. Neuton S. Stern, Memphis, "Hypertension in the South"; Drs. Samuel A. Levine and Francis C. Newton, Boston, "The Selection of Patients with Angina Pectoris for Cervical Sympathectomy, with a Report of Additional Cases"; Dr. Merrill M. Myers, Des Moines, and Dr. Paul D. White, Boston, "New Observations on the Classification of Cardiac Diagnosis, with Especial Reference to Etiology"; Drs. Frederick A. Willius and Samuel F. Haines, Rochester, Minn., "The Heart in Myxedema"; Dr. William J. Kerr, San Francisco, "Factors Involved in Localization of Vegetations on the Heart Valves,"

and Dr. Emanuel Libman, New York, "Importance of Blood Examination in the Recognition of Coronary Artery Thrombosis and Its Sequelae."

FOREIGN

Unethical South African Dentists.—Twenty-six dentists in Durban, South Africa, recently inserted their names in the advertising columns of a newspaper in the form of a "medical directory." The Natal Medical Council asked for an explanation. The council informed "the first signatory" that it disapproved of such advertising and hoped that no further action of a like kind would occur. In forwarding to the secretary for public health the letter of explanation from "the erring dentists," the council commented thereon to the effect that since licensed dentists in Durban suffered because of the unqualified dental practice prevailing, it was inclined to take a tolerant view of this action. This was, in the opinion of the *South African Medical Record*, a grave error of judgment on the council's part. It extenuated a distinctly unprofessional course of action, because certain dentists are competitors of other dentists who are bound by no ethical rules whatever. As much as to say, since quacks are numerous in Durban, there are no professional ethics east of the Umzimkulu.

First Professor of Obstetrics in Australia.—The University of Sydney has just appointed Dr. J. C. Windeyer to the chair of obstetrics. He will be the first professor of obstetrics in Australia, a lecturer having been appointed heretofore. It has been recognized, the *Medical Journal of Australia* states, that there is a serious defect somewhere in the teaching of obstetrics. The maternal and infant morbidity and mortality are much too high. A departmental committee appointed several years ago to study this matter recommended measures for its control, some of which have been adopted without any apparent effect. Obstetrics, the journal continues, has been squeezed in somehow in an overfilled medical curriculum. The training has been unsatisfactory because it has been impossible to introduce a plan based on experience. The demand has arisen, therefore, for reorganization of these courses, and the most natural starting point was to make one competent obstetrician responsible for the courses. Within a short time the Universities of Melbourne and Adelaide must follow the University of Sydney in appointing either a professor or a director of obstetrics.

Personal.—Dr. A. F. McCallan, formerly director of the Ophthalmic Hospitals of Egypt, has been elected assistant ophthalmic surgeon to the Westminster Hospital, London, and assistant surgeon to the Royal Eye Hospital.——Dr. C. Richet, professor of physiology, Paris, recently delivered a lecture at the Barcelona medical school on "Metapsychics," his term for phenomena beyond the range of the ordinary senses of man. The medical faculty tendered him a banquet afterward.——Dr. M. Askanazy, professor of pathology, Geneva, president of the German Pathologic Society, was the guest of honor at a banquet tendered by the Geneva Medical Society in honor of his sixtieth birthday.——Dr. Lina Stern, assistant professor of physiologic chemistry at Geneva, has been offered the regular chair of physiology at Moscow.——Dr. Trongé, professor of obstetrics, Buenos Aires, was given a reception at Paris by the Umfia, the Union médicale franco-ibéro-américaine, of which Dr. Dartigues is now president.——Dr. H. E. Sigerist, professor of the history of medicine at Zurich, has accepted a call to the similar chair at Leipzig, from which Dr. Sudhoff has retired on account of age.——Prof. E. Willems, rue Hors-Chateau 48, Liége, is at the head of the committee planning a testimonial to Dr. C. Firket, now professor emeritus, who has been in charge for twenty years of the institute for histologic examination of cancers at Liége.——Dr. Prochazka, Prague, chief of the public health service, has been appointed the permanent representative of Czechoslovakia in the committee of the International Health Board at Paris.——The *Presse médicale* states that Dr. G. Portmann, professor of ear and throat diseases at Bordeaux, has been sent by the French government on a special scientific mission to the universities of Moscow and Leningrad.

Deaths in Other Countries

Sir Rickman John Godlee, emeritus professor of clinical surgery, University College, London; past president of the Royal College of Surgeons; honorary surgeon in ordinary to the king; author of "Lord Lister" and other works; at Whitchurch, Oxon, aged 76.——**Dr. L. Nesti,** Florence, editor of the *Sperimentale.*

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 11, 1925.

London Street Accidents

The alarming increase of street accidents brought about by the introduction of motor traffic has led to the formation of a valuable organization known as the London "Safety First" Council. At its eighth annual meeting, Mr. Sheriff Downer read the address which the lord mayor had prepared but could not be present to deliver. The steadily mounting total of accidents is disquieting. It is intensely sad to know that 500 children lost their lives in the streets of London during the last two years. The phenomenal growth of the travel habit has led to the alarming increase in the number of accidents on the streets. Safety will never be won solely by acts of parliament but rather by the cooperation of all members of the community and by the weight of public opinion. To the "Safety First" Council belongs the credit for initiating the movement in this country. It has grown slowly but steadily, and now is spreading to other centers, embracing industry and transport alike. The wisdom of the council's policy in directing its maximum effort toward the education of the rising generation is unquestionable. The number of children competing annually in the "Safety First" competition has risen from 41,000 to 183,000, and the number of competing motor drivers has risen from 2,000 to 13,000 in eight years; but the income of the council has hardly increased at all. Lord Newton (president) said that in 1922 there were in London 667 fatal accidents, and 69,000 nonfatal accidents. In 1924, the number of fatal accidents was 845, and of nonfatal accidents, 83,000. Many of these accidents were preventable. A large proportion of them was due to the existence of two rules—one for vehicles, and one for foot passengers. If the sensible proposal that all traffic should move in the same direction were adopted, the number of accidents would be largely diminished. The city of London was the only public body which opposed the simple solution of the difficulty that all traffic, of both kinds, should proceed in the same direction.

Postgraduate Teaching in London

A meeting to which all physicians were invited has been held under the auspices of the Fellowship of Medicine and Post-Graduate Association to discuss the best means of developing the fellowship and increasing its range of usefulness. Sir W. Arbuthnot Lane, the president, said that the fellowship had grown to considerable dimensions and was rapidly becoming more popular. In time it must become a most important agent for education. Postgraduate study was a habit which every physician must acquire if he hoped to succeed in his profession and to gain the confidence of the public. Mr. Herbert Paterson, secretary of the fellowship, said that the association hoped to make London a world center of postgraduate teaching and to intercept some of the students from overseas who were intending to go to the continent.

POSTGRADUATE STUDY IN THE NAVY

Surgeon Commander Brown said that every medical officer in the navy when he attained eight or ten years' seniority must pass an examination to qualify for the rank of surgeon commander. The first period of postgraduate study consisted of three months devoted to medicine and surgery at a London hospital, and two months at the Naval Hospital at Greenwich, with visits to the School of Tropical Medicine. The second period commenced when the officer

had attained a seniority of fourteen years, the course extending for three months, and being designed to enable him to refresh his general knowledge and take up special subjects. These courses were not compulsory, but every facility was given to officers to take part in them.

POSTGRADUATE STUDY IN THE ARMY

The Director General of the Army Medical Service, Lieut.-Gen. Sir W. B. Leishman, said that the army had not so far resorted to the fellowship. Arrangements for postgraduate study had grown up gradually at the Royal Army Medical College. The course was divided into three parts. In the first, instruction was given in medicine, largely tropical medicine, surgery, pathology and "state medicine." That instruction might be called internal or domestic, and it was supplemented in various directions outside; for example, by attendance at the recruiting stations. This lasted three months, and was terminated, like every stage of the training, by an examination. In the second stage, the officers, while still in residence at the college, were detached for further study in clinical medicine and surgery, and attended by arrangement at large civil hospitals, at present Charing Cross and St. Thomas', where they had the benefit of seeing modern practice and also of attending special tutorial classes. At the end of this period, which extended over two months, making five months in all, came another examination. The third stage went a little further. It was desired to encourage every officer who had any particular bent to obtain the fullest instruction in the branch he favored and to qualify himself as a specialist. Officers were not allowed to go on to specialize unless they had attained a certain standard of efficiency in the general examinations. An endeavor was made to encourage the men, whenever possible, to obtain higher degrees and technical qualifications in particular subjects; the diploma in psychologic medicine, for instance.

CIVILIAN PHYSICIANS' NEEDS

A physician who had lately settled in London paid a tribute to the good work done by the fellowship. He had met courtesy and help in every direction. It was said that strangers coming to London were at a loss to know where to attend, and that when they went to certain hospitals nobody took any notice of them. If these persons studied the monthly syllabus issued by the fellowship, they would have no occasion for complaint. He suggested, however, that certain consultants or junior members of hospital staffs should be asked to allow their names to be placed on a panel, and that as a part of their work they should arrange "personally conducted tours" round certain hospitals, which he supposed must be hospitals not having medical schools. It was not unusual cases that would be taken, but such cases as might be encountered in general practice from day to day. There should be a close relation between the central postgraduate body in London and postgraduate schools existing in the provinces. It was conceivable that men from the colonies or abroad might wish to take part of their course in London and spend the rest of it at some medical school in the provinces or in Scotland. The officials of the fellowship should try to arrange for parties to be made up in London to go abroad to various foreign schools. This method, widely adopted in America, would be of interest and value to physicians who wanted to learn foreign methods.

A Health Officer Not Allowed Subscriptions to Medical Societies as Expenses in Calculating Income Tax

Judgment has been given in a case of considerable interest to the profession. The health officer to the Middlesex County Council appealed to the commissioners of income tax against an assessment. He paid subscriptions to various societies amounting in all to $40, and he claimed that the money was expended wholly, exclusively and necessarily in the performance of his duties as health officer, and should be deducted from his salary in order to arrive at his correct liability to income tax. The sum of $40 was made up by subscriptions as follows: Fellow of the Royal Society of Medicine, $25; Fellow of the Society of Medical Officers of Health, $7.50; Fellow of the Royal Institute of Public Health, $5; Association of County Medical Officers of Health, $2.50.

The respondent proved the following facts: (*a*) He joined the Royal Society of Medicine in order to have the benefit of the meetings of the epidemiologic branch of the society, and to obtain the transactions published by that branch; (*b*) the Royal Society of Medicine included a section dealing with infectious diseases, a subject of the greatest importance to county medical officers; (*c*) the Society of Medical Officers published a journal dealing with public health matters, and took an active interest in questions affecting the status and salaries of public health officers; (*d*) he became a Fellow of the Royal Institute of Public Health in order to get its journal, which contained articles on matters relating to public health; (*e*) he became a member of the Association of County Medical Officers of Health to enable him to ascertain how similar work was carried out throughout England; (*f*) membership in the foregoing societies was voluntary and was not required as a condition of his appointment; (*g*) without the journals and meetings of the societies, the respondent would have had great difficulty in keeping in touch with recent advances in sanitary science and the medical questions affecting public health, and in many instances would have been unable to obtain the knowledge.

The respondent said that knowledge so obtained enabled him to perform his duties with increased efficiency. He contended that the sum of $40 was a proper deduction from the emoluments to be assessed. It was contended for the crown that the money was not so expended, and was not, therefore, a proper deduction. The commissioners found in favor of the respondent, and the crown appealed against the decision.

Mr. Justice Rowlatt said that the decision of the commissioners could not be supported. Certain expenses were allowed to an office holder, but an office holder was a person who was obliged to qualify for his office, who had to get to the place where his duties were carried out, and who was allowed certain expenses in performing them. The respondent had first to qualify himself before taking up his office, and he continually and properly kept himself fit by continuing in touch with the highest knowledge his profession had reached. But he did not join the societies for the purpose of treating patients, but for the purpose of keeping himself qualified as a man to hold his office. The whole question was a matter of principle. Subscriptions to professional societies, and the buying of professional literature, and all the expenses involved in keeping a man fit for the work he was doing could not be allowed. Otherwise any man belonging to any profession could deduct all such expenses and there would be no end to it. The principle was quite clear, and none of the expenses incurred by the respondent could be deducted. The reference in the judgment to the treatment of patients appears to show that the judge held that subscriptions to medical societies may be deducted by practicing physicians in calculating income subject to tax.

Noise and Infant Health: St. Andrews Institute Research

The fifth annual report of the St. Andrews Institute for Clinical Research, just issued, states that more and more time has been devoted to obtaining records of normal infants from birth onward, with full details of family history and environment. Records of 457 infants from birth have been obtained and are being followed up. Some interesting new facts have emerged. One is that certain infants brought up in noisy and unrestful surroundings fail to thrive in spite of

the most careful regulation of diet. On their removal to quiet and restful surroundings, improvement is at once manifest. Some 401 children more than 2 years of age are now "recorded" on the institute file. It has been found that certain children suffer from loss of appetite and impaired digestion during their early school terms. This loss of appetite is due to the "new and disturbing factor in their environment," and, if the disturbance is long continued, a permanent disability may be produced. The report says: "Our follow-up system will show whether these early troubles are to some extent responsible for the prevalence of dyspepsia in later years."

The Cockroach and Cancer

Dr. Louis Sambon, an authority on tropical diseases, incriminates the cockroach as a cancer carrier. In December last he delivered a lecture on the subject at the Pasteur Institute, Paris. On the ground that Dr. Sambon's work has not received in this country the attention it deserves, the council of the Society of Pestology has decided to offer its gold medal for 1925 for the best original research dealing with the cockroach as a possible carrier of cancer and other diseases. Dr. Sambon, who is an Italian, settled in this country, recently found in Italy a striking inequality in the geographic and topographic distribution of cancer; extraordinary frequency of the disease in the upper portion of the alimentary tract, especially the esophagus and cardiac end of the stomach and the constant presence of rats, mice, cockroaches, cellar beetles and mealworms in houses presenting one or more cases of cancer. Dr. Sambon holds that the essential cause of cancer is a filter passer, but that the parasite thrives only in tissues of low or lowered resistance. Among the causes of lowered resistance, he includes irritation caused by worm parasites which he believes are carried to man by vermin, notably by cockroaches.

PARIS

(From Our Regular Correspondent)

April 8, 1925.

Poisoning Resulting from Eating Edible Mussels

In an extensive article appearing in the *Annales de médecine*, N. Fiessinger and A. Ravina discuss the various aspects of poisoning resulting from the dietary use of edible mussels, *Mytilus edulis*. These mussels are widely used as an article of food. For many years, it has been known that poisoning of varying gravity, and doubtless due to widely different causes, may occur from their consumption.

The writers point out that often mussels are eaten that have been developed under very bad conditions, since the sea mussel can be made to thrive in stagnant or polluted waters more easily than other mollusks. As a rule, mussels gathered in the ports of northern France are eaten within forty-eight hours after they are taken out of the water. They are usually eaten in an almost raw state, being allowed to remain only a few minutes over the fire, just long enough to kill the animal and to cause its bivalve to open.

Poisonings due to the consumption of mussels may be divided into three classes: 1. In the general type of intoxication, a special susceptibility of the subjects to the toxin (or toxins) does not enter into the count, for all the persons who have eaten the mussels served at a given repast develop grave symptoms, while some of the cases result fatally (outbreaks at Wilhelmshaven in 1885-1887 and in Calais in 1907). 2. The second type is an anaphylactic intoxication, resulting from a special idiosyncrasy, the predominant symptom being urticaria. 3. Finally, gastro-intestinal disorders, together with icterus, may arise, which are of a much milder nature.

In the general intoxication, the following symptoms are observed: Three or four hours after partaking of the toxic food all the persons concerned develop dizziness and a chilly feeling in the extremities; vomiting occurs, and also formication and mydriasis are present. This phase is of short duration and is followed by paralytic manifestations, angiospasms and cyanosis, and in the most severe cases death ensues following collapse, which develops while the patient is fully conscious. In the surviving patients an intense feeling of weariness persists for several days, associated with myoclonic attacks and marked difficulty of locomotion. Paralytic phenomena are not common. During a period of nearly a hundred years only thirteen outbreaks are recorded; ninety-one persons were affected, twenty-five of whom died. The mortality is exceedingly low if we consider the enormous daily consumption of mussels.

In the other and more frequent anaphylactic cases, the symptoms develop about two hours after ingestion of the toxic food. The patient complains of a feeling of heaviness in the epigastrium, of oppression in the chest, dizziness and nausea, which is followed by vomiting and sometimes by a choleriform diarrhea. Respiration is accelerated, the pulse is rapid and blood pressure is low. Then an urticarial rash appears, usually of an edematous nature, the wheals being sometimes of the giant type and isolated. The rash may continue for only a few hours or may last two or three days and be attended by a high fever.

The general symptoms disappear usually when the rash breaks out; but sometimes they may persist and death may ensue while the patient is in an unconscious state. Intoxication does not depend on the quantity of the food ingested but rather on a special sensitiveness of an anaphylactic nature. Finally, there is a slight intoxication caused by mussels, characterized by vomiting, an ordinary or a choleriform diarrhea, and a peculiar redness of the tonsils simulating a mild angina. Fiessinger points out that even these slight intoxications may cause icterus. This develops two or three days after the ingestion of the mussels and resembles a benign catarrhal icterus. In these cases the special susceptibility of the subjects affected is certain, for not all the persons who partook of the food are affected, as they are in the more general intoxication. While the symptoms of the intoxication seem perfectly plain, it is a more delicate matter to discover the causes of the intoxication.

It would seem that, independent of the action of any foreign body, the normal mussel has the capacity of elaborating a toxic substance. Professor Richet, who has made researches on the problem, has been able to isolate two different poisons, thalassin and mytilocongestin. The former is a crystallizable nitrogenous substance, soluble in alcohol, thermostabile, producing, when injected intravenously, a generalized pruritus and erythemas of the skin and the mucous membranes. Mytilocongestin is an albumose, soluble in water, insoluble in alcohol and thermostabile. When injected into dogs it elicits vomiting, diarrhea with bloody stools, and torpor. If death ensues, an intense congestion of the intestine is found at necropsy. It may be noted that 25 kg. of mussels is required to obtain 0.25 gm. of mytilocongestin, and that 0.07 gm. per kilogram of animal body weight constitutes a toxic dose of this substance.

Fiessinger and Ravina have investigated the toxic effects of glycerinated and alcoholic extracts of ordinary sea mussels prepared as for human consumption. If these extracts are injected under the skin, into the peritoneum or into the portal circulation of the guinea-pig, they do not cause the rapid death of the animal, nor even icterus or a macroscopic hepatic lesion. They produce merely congestive lesions of the abdominal viscera and histologic lesions of the liver. These lesions consist of marked changes in the mitochondria of the hepatic cells, more particularly in the centrolobular

and periportal regions. These changes prove incontestably the presence of a hepatotoxic substance in the normal mussel. But the toxicity of the normal mussel is minimal, and the manifestations attending the general intoxications cannot possibly be explained by the sole presence of thalassin and mytilocongestin. Although not deeming it worth while to discuss in detail hypotheses that are no longer held to be tenable, I will merely mention that occasionally an attempt has been made to incriminate poisons resulting from the autolysis of mussels eaten several days after they were taken from the water. It is true that such poisons exist, but it has been shown that they do not appear until after the fifth day; that they are not toxic except in large doses, and that they are destroyed by a few minutes' boiling. Furthermore, in all the outbreaks of general intoxication the mussels had been eaten fresh.

In 1885, in connection with the outbreak at Wilhelmshaven, Wolff demonstrated the chief part played by the liver of the mussels in the intoxications. The liver often has an abnormal appearance (Netter and Ribadeau-Dumas) and has been shown experimentally to be much more toxic than the other parts of the mollusk. This peculiar toxicity of the liver results, no doubt, from its capacity of fixing the microbes and the toxic substances from its surroundings. In the hepatic parenchyma of the mussel various micro-organisms, sometimes pathogenic (*Vibrio cholerae*, for example), have been found. Lustig isolated from the liver of mussels taken from the stagnant waters of the ports of Genoa and Trieste a micro-organism which when injected into rabbits and guinea-pigs caused the onset of fatal choleriform diarrhea. The cooking that the mussels undergo before they are eaten must certainly destroy to a great extent any bacteria that they contain. For the mussels to remain toxic after they are cooked, we must incriminate not the direct action of the bacteria but the effect of their thermostabile poison, which may be fixed by the liver. The influence of the surroundings on the mussels seems, therefore, very great. Only the mussels that live in the stagnant waters of the bays and ports are toxic and not those that live in the more open sea. If the latter are artificially transported to the stagnant zones they, too, become toxic, and, inversely, toxic mussels lose their pathogenic action after being placed for a few weeks in an aquarium. However, the effect of the surroundings is not always decisive, for sometimes mussels that are in direct contact with virulently poisonous mussels are found to be harmless. Furthermore, in most of the extensive outbreaks, it could be shown that the toxicity of the mussels varied from time to time and usually disappeared quickly.

Most writers have concluded that the toxicity of the mussels is the result of an actual disease affecting the liver, from which the mollusks are suffering. It is probable, however, that there is more than one cause for the intoxication. It may depend in some instances on the action of various bacteria lodged in the liver, and in some cases on a toxin entering the liver from the surroundings, or again on some transient disease of the mussel the cause of which remains unknown.

The production of paralytic effects in certain cases, of urticaria in others, and of gastro-intestinal disorders in still others is seemingly conclusive evidence that the mussels contain more than one kind of poison. Thalassin and mytilotoxin, which cause the paralytic symptoms, are only one type; the others remain to be discovered. Although general poisoning from the eating of mussels is rare, it would be well if the cultivation of mussels were supervised everywhere with as much care as in the Netherlands, where large quantities of mussels are eaten and where great precautions are taken to prevent poisoning.

BERLIN

(From Our Regular Correspondent)

March 31, 1925.

The Maximum Labor Performance and Psychologic Research

In addition to giving detailed information with regard to the future prospects of the Institute for Psychiatric Research, Professor Kraepelin discussed also psychologic research with reference to the maximum labor performance. The Taylor theory, the aims of which are rather more practical than scientific, has in recent years brought the problem of the rational performance of work more to the fore. Also men of science have made contributions toward a solution of the problem. The results of a number of experiments have already been published. Of especial importance is the establishment of the unit of measure for the performance. Only uninterrupted series of single performances and labor processes made up of simpler partial processes are adaptable to the method. Also intelligent experimental subjects are needed. The experiments performed thus far have had to do with the addition of columns of figures, the striking out of letters in meaningless texts, and also with industrial performances of various kinds. A number of factors enter into the account; especially, practice, the psychic and physical adaptation to the work, the willingness to work, the pleasure taken in one's work, the numerous mental influences, the proper combating of fatigue by the necessary intervals of rest, nutrition, sleep, and Sunday rest. Many of these demands sound exceedingly commonplace, and the scientific study of already known facts might appear superfluous if the experiments carried out thus far had not already proved that the introduction of definite systems is an actual aid in increasing the performance of workmen. Far-reaching division of labor makes possible the highest performance but presents the danger of onesidedness and deterioration of personality. Experiments have shown that, by the introduction of suitable rest periods, the labor performance can be greatly increased. A lowering of performance on Saturdays is commonly noted, for which a number of psychic factors are responsible. Especially when workmen regard their tasks as forced labor, the tendency is manifest to anticipate the closing time. Also the thought arises that it is not worth while to become really interested in one's work; then, too, plans for a Sunday outing often serve to divert one's thoughts from one's work. Nor is the labor performance on Mondays usually up to the average of the other week days. This is doubtless due not so much to getting out of practice over the week-end as to the dulling after-effects of the alcoholic beverages partaken of on Sunday. A continuation and extension of the experiments is eminently desirable. An endeavor must also be made to allay the distrust of workmen by convincing them that what is wanted of them is not longer hours of labor but only an increase of performance through the introduction of more rational methods. Employers and employees must come to a better understanding in this regard.

Housing Conditions in Prussia

To the deplorable housing conditions in Germany and their influence on public health, especially as regards tuberculosis and venereal diseases, I have already referred in several of my letters. Further light on this hygienic problem of general interest is thrown by an article by Dr. Willführ, the chief health officer of the Prussian government district of Liegnitz, Silesia. The following information is taken from this report, published in the official organ of the ministry of public welfare: The plaster in many occupied rooms has fallen from the walls, leaving large, unsightly bare spots; the roofs of houses are no longer tight enough to keep out the rain;

the rain in semibasement dwellings seeps through the foundation walls to the floors of the rooms and causes them to decay; many staircases resemble rickety hen-perches; the outer halls and landings, as well as the ceilings and walls of the rooms, are reeking with dirt; large areas of the walls are covered with mold; many roofs are about to collapse; the windows in many instances are almost falling out of their frames, while the doors are in bad condition and show many wide cracks.

In one dwelling the occupants had heaped up sawdust a foot deep in front of the windows as a protection against the elements, but this makeshift prevented the windows from being opened. At the same time, it was an overcrowded apartment, level with the ground, with no basement under it.

In Glogau, Willführ found 150 families of war fugitives still living (where they had been for from three to five years) in the rooms of abandoned garrisons and a former lodge. In these rooms the quarters for the different families were separated by partitions extending only half way to the ceiling in much the same manner as stalls for horses are constructed, so that a family occupying such an apartment would be disturbed by the noise from adjoining apartments. As there are no storerooms, the coal supply is put in one corner and the potatoes are shoved under the bed.

The same bad conditions were found in numerous other overcrowded dwellings. Numerous other families in Glogau, aside from the refugees, are still housed in barracks, which in summer are exceedingly hot and in winter frightfully cold, and it is significant that those count themselves especially fortunate who are able to secure quarters in the damp and dark living rooms of the fortress, where the famous Fritz Reuter was once imprisoned.

In the camp at Lerchenberg, near Glogau, there are forty-six refugee families (186 persons in all) living (some for the past three years) summer and winter in barracks in which the floors, walls and ceilings have wide cracks, so that the occupants are constantly exposed to drafts, while the surface water under the buildings extends up almost to the floors.

Picture Posters and Accident Prevention

The league of the German trade unions (Verband der Deutschen Berufsgenossenschaften) has opened a bureau for the prevention of accidents (Zentralstelle für Unfallverhütung), which, among other forms of propaganda, has launched an extensive picture poster campaign. A few months ago, a limited stock company was formed ("Unfallverhütungsbild-G. m. b. H."), the duties of which will be to produce good accident prevention posters of artistic workmanship and to distribute them in the most feasible manner. The first pictures have now appeared and have been distributed. One of the picture posters is of a general nature, calling attention to the large number of accidents occurring daily, and urging every employee of an industrial establishment to do all in his power to prevent or lessen their number. Another of the posters urges all workmen to be particularly cautious to prevent eye injuries. The most important problem has been as to the best method of distributing the accident prevention posters. It was decided that the best plan was to make use of the trade unions themselves, and to send the posters out to the various industrial unions with the request that they assume the obligation of displaying them where they would be most likely to be seen and read. The employers and the officers of the labor unions are expected to take a special interest in the distribution of the posters, since they will be conscious of the fact that they are serving thereby the best interests of all concerned: workmen, general employees, employers and the trade union in its capacity of a life and health insurance society.

BUENOS AIRES

(From Our Regular Correspondent)

March 5, 1925.

Millions for Hospital Improvements

Progress has been made on the rebuilding of the Rawson Hospital, which will now have room for 2,000 patients, on changes in the Salaberry Hospital, and in enlargement of the Ramos Mejía Hospital and the Hospital for Chronic Cases at Ituzaingó. The municipality of Buenos Aires has 18,000,000 pesos (about $6,950,000) available for this work. In addition, the Pirovano Hospital (office building, dispensary and social hygiene, ear, nose and throat and eye pavilions) and the Nueva Pompeya Hospital will be enlarged.

International Malaria Congress

At the International Malaria Congress to be held in Rome in the latter part of April, Argentina will be represented by the following delegates: Hon. Fernando Pérez, ambassador to Italy; Dr. Gregorio Aráoz Alfaro, president of the National Health Department; Dr. Alfredo Sordelli, director of the Bacteriologic Institute, and Dr. Cayetano Sobrecasas.

Lectures by Dr. Case

Dr. James T. Case delivered a series of lectures during a brief stay on his return trip from Lima. He spoke on "Radiology of the Gallbladder and Duodenal Ulcers" at the Institute of Clinical Surgery. At the Cancer Institute, he described the results of deep roentgen-ray therapy in cancer, and especially in carcinoma of the colon, referring to his experience at Battle Creek. At the Army Hospital he explained field roentgen-ray work and application of roentgen rays to war surgery.

Internship

The recent clashes between the medical students and the director of public assistance have reached a climax. The students remain on strike, claiming that they have been unable to complete their clinical work. Postponed examinations were granted, but they could not be held because of the activities of pickets. Finally, the students refused to take the examination, explaining that many of their number had already left for their homes in the provinces. Several hundred were willing to take the examinations but were not allowed to do so by those in control. At the last moment, the directing board of the university postponed the examinations from December until March, explaining that this action was taken to avoid any serious outbreaks. This measure was very unfavorably received both by public opinion and by physicians.

The municipal council ordered the abolition of the internship, which was changed to an "externship." This allows students to assist in the wards during the day, but not to take their meals or sleep in the hospital except when on duty. Salaries were increased. This discontinuance of the internship, caused by the persistent lack of discipline, will tend to decrease chances for acquiring experience in emergency and serious cases. A large number of students have taken a pledge not to accept any appointment while the present director of public assistance remains in his position. However, after the former interns were summoned to duty and failed to report, new appointments were made. The new appointees have been made the subject of some personal attacks and threats, but have not resigned their positions. It is hoped that the present agitations will soon quiet down, as it is now becoming a serious question. These several instances of lack of discipline are really part of the disorganization evident in the universities since 1918. Disturbances at the Córdoba and Rosario universities preceded the present one at Buenos Aires.

Rockefeller Foundation Fellowships

For the first time the Rockefeller Foundation has granted fellowships to Argentine physicians. The fellows are: Juan T. Lewis (physiology and pharmacology) and Juan Balado (surgery).

Antimalarial Work

The antimalarial work undertaken at Monteros (Tucumán), Salta (Salta) and Mendieta (Jujuyo) is now being completed, and similar work will soon be started at Concepción (Tucumán), with the cooperation of the local authorities. The national health department has asked the public works department to organize a permanent section of sanitary engineering to assist the health service experts.

Sanitary Station

In the city of Salta, there has been placed the cornerstone of a national sanitary station. The ground was donated by Dr. Luis Guemes. This institution will include services for the prevention and treatment of malaria and tuberculosis; for child welfare and venereal diseases; other services for trachoma and infectious ophthalmia, and a dispensary for mothers and infants. In addition, there will be a laboratory, a disinfection section and a public bath pavilion.

Trachoma

On account of the neglect of the immigration authorities, many trachoma patients entered the country in former decades, but now a very active supervision is exercised in this regard. The disease has declined in the large coast cities, but has become endemic in some districts at Salta, Jujuy, Tucumán and Santiago del Estero. Special dispensaries have been organized in several places, and more will be established while an intensive education campaign is carried out. Consideration is being given to the organization of special schools for children with trachoma; meanwhile those attending school are being examined and treated.

Personal

Prof. Mariano R. Castex recently visited several American clinics and spent some time in Paris and London. While abroad, he was appointed a member of the Royal Society of Medicine at London and corresponding member of the Mexican Academy of Medicine.——Dr. Alfredo Sordelli, director of the bacteriologic institute of the national health department, has been sent by the government to make an inspection of similar institutions in Spain, France, Switzerland and the United States.

Marriages

PAUL CLINTON COOK, Providence, R. I., to Miss Ella Cornelia Deming of Wethersfield, Conn., April 14.

GORDON A. THOMAS, Lafayette, Ind., to Miss Lucille Marie Scanlon of Boswell, at Oxford, February 23.

HARRY G. TONKIN and Mrs. Sallie Morgan Post Hodges, both of Martinsburg, W. Va., February 18.

FRANK J. MCGOWAN, JR., New York, to Miss Ada Ruth Bovee of Williamsport, Pa., April 13.

JAMES R. GORMAN, Lynchburg, Va., to Miss Mary Woodville Furguson of Clifton, April 14.

WILLIAM HOWELL KISER, JR., Atlanta, Ga., to Miss Ellen Finley of New York, April 16.

GEORGE E. DAVIS to Miss Leila Davis Taylor, both of West Mansfield, Ohio, February 24.

ARVINE EARL MOZINO and Miss Helen Gramling, both of Indianapolis, February 6.

SYDNEY S. SCHOCHET, Chicago, to Miss Rosalind Bael of New York, April 7.

Deaths

George D. Wilkins, Wheeling, W. Va.; Medical School of Harvard University, Boston, 1899; served in the M. C., U. S. Army, during the World War; superintendent of the Ohio Valley General Hospital, and formerly superintendent of the Wilkes-Barre (Pa.) Hospital, the Michael Reese Hospital, Chicago, and the Charity Hospital, New Orleans; aged 51; died suddenly, April 1, of heart disease.

Stoddard S. Burg, Staten Island, N. Y.; Jefferson Medical College of Philadelphia, 1903; member of the Medical Society of the State of Pennsylvania; served during the World War; surgeon, U. S. Public Health Service, Reserve, being stationed at the U. S. Marine Hospital, Stapleton, where he died, April 9, following an operation; aged 43.

Frederick H. Brunig ⊕ Kansas City, Mo.; Kansas City Medical College, 1894; for many years on the staffs of the Providence Hospital, Kansas City, Kan., and St. Joseph's and St. Mary's hospitals, Kansas City, Mo.; aged 62; died, April 8, at the Research Hospital, following an operation.

Katherine Piatt Raymond ⊕ Wellesley, Mass.; University of Michigan Medical School, Ann Arbor, 1905; for eighteen years resident physician to the Wellesley College; aged 56; died, April 3, of a streptococcus infection, complicated by erysipelas, contracted while treating a patient.

Norman Hayes Probasco ⊕ Plainfield, N. J.; Medical Department of Columbia College, New York, 1898; served in the M. C., U. S. Army, during the World War; formerly on the staff of the Muhlenberg Hospital; aged 48; died, April 6, of chronic arthritis and nephritis.

Joseph Henry Bowers ⊕ Albany, N. Y.; Albany Medical College, 1912; served in the M. C., U. S. Army, during the World War; on the staff of the Albany Hospital; aged 35; was shot and killed accidentally, March 30.

Henry Wilgus Dickinson, Dayton, Ohio; Hahnemann Medical College and Hospital, Chicago, 1881; consultant to the Miami Valley Hospital, where he died, April 2, following an operation for duodenal ulcer, aged 68.

Homer Irwin Ostrom, Waquoit, Mass.; New York Homeopathic Medical College, 1873; formerly on the staffs of the Hahnemann and Metropolitan hospitals, New York; aged 72; died, April 4, at a hospital in Boston.

George W. Hartmann ⊕ Wauseon, Ohio; University of Michigan Medical School, Ann Arbor, 1881; past president of the Fulton County Medical Society; aged 73; died, March 2, of pneumonia.

Eugene O. M. Haberacker, Altoona, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1869; member of the Medical Society of the State of Pennsylvania; aged 78; died, April 5.

Arthur J. Simons, Newfoundland, Pa.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; aged 67; died, March 24, of carcinoma of the liver.

Peter Gustav Peterson ⊕ Zion, Ill.; Bennett Medical College, Chicago, 1914; aged 53; died, April 10, at the Henrotin Hospital, Chicago, of heart disease, following an operation for gallstones.

William Russell Cooper, Point Pleasant, Pa.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; aged 62; died, April 1, of erysipelas.

Patrick Maurice Burke ⊕ La Salle, Ill.; Medical Department of Columbia College, New York, 1880; formerly member of the board of education; aged 70; died, March 28, of pneumonia.

Austin Wesley Cline, Endicott, N. Y.; College of Physicians and Surgeons, Baltimore, 1901; formerly health officer of Binghamton; aged 47; died, suddenly, April 7, of heart disease.

Walter Malcolm Cowperthwaite, Sydney, Nova Scotia, Canada; McGill University Faculty of Medicine, Montreal, Que., 1900; aged 52; died, February 4, of pulmonary edema.

Samuel K. Montgomery, Texarkana, Ark.; Fort Worth (Texas) School of Medicine, Medical Department of Fort Worth University, 1901; aged 68; died, March 29.

⊕ Indicates "Fellow" of the American Medical Association.

William Spaford Birge ✠ Provincetown, Mass.; Medical Department of the University of the City of New York, 1881; aged 68; died, March 26, of cerebral hemorrhage.

James Wesley Rice ✠ Washington, D. C.; Ensworth Medical College, St. Joseph, 1912; aged 42; died, March 12, of cyanide poisoning, presumably self-administered.

Grant Gratz Brown, Wichita, Kan.; Howard University School of Medicine, Washington, D. C., 1899; aged 49; died suddenly, in March, of cerebral hemorrhage.

William Franklin Ong, Uhrichsville, Ohio; Ohio Medical University, Columbus, 1904; aged 49; died, March 30, at the Grant Hospital, Columbus, of heart disease.

Francis Porcher Lewis, Birmingham, Ala.; Medical College of the State of South Carolina, Charleston, 1877; Civil War veteran; aged 80; died, March 29.

Edward Mowry Harris, Pasadena, Calif.; Medical School of Harvard University Boston, 1866; formerly a practitioner in Rhode Island; aged 83; died, April 3.

Joseph Wofford Epton, Greenville, S. C.; University of Tennessee College of Medicine, Memphis, 1881; aged 68; died, March 15, at the City Hospital.

Thomas Ray Purkey, Detroit; Michigan College of Medicine and Surgery, Detroit, 1906; aged 42; died, March 30, of chronic interstitial nephritis.

Walter Rollo Emmett ✠ Ogden, Utah; Northwestern University Medical School, Chicago, 1910; aged 50; died, March 24, of leukemia.

John W. Phillips ✠ Troy, Pa.; Baltimore Medical College, 1896; aged 50; died, March 11, at Palm Beach, Fla., of chronic endocarditis.

William H. Hardison ✠ Creswell, N. C.; Washington University School of Medicine, Baltimore, 1870; aged 79; died, March 26.

Harvey Marion Egolf, Winona Lake, Ind.; Medical College of Indiana, Indianapolis, 1881; aged 68; died, April 1, at Miami, Fla.

Gilman Joseph Winthrop ✠ Mobile, Ala.; Johns Hopkins University Medical Department, Baltimore, 1906; aged 43; died, April 7.

John S. Young ✠ Rahway, N. J.; Jefferson Medical College of Philadelphia, 1906; aged 44; died, April 4, at Daytona Beach, Fla.

Fenton I. Gidley, Los Angeles; University of Vermont College of Medicine, Burlington, aged 63; died, March 13, of asthma.

John Alexander Miller, San Francisco; University of California Medical School, San Francisco, 1875; aged 74; died, March 30.

Sebastian Klein ✠ St. Louis; St. Louis College of Physicians and Surgeons, 1892; aged 57; died, March 31, of nephritis.

John Scott McLeod, Los Angeles; Tufts College Medical School, Boston, 1900; aged 49; died, recently, of chronic arthritis.

Solomon Frank West, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; aged 53; died, April 6.

William Wood Taylor ✠ Memphis, Tenn.; Bellevue Hospital Medical College, New York, 1876; aged 70; died, April 7.

Charles Edgar Busey, Lynchburg, Va.; College of Physicians and Surgeons, Baltimore, 1878; aged 71; died, April 6.

Burton Roderick Clow, Santa Barbara, Calif.; Eclectic Medical Institute, Cincinnati, 1889; aged 70; died recently.

Daniel W. Harrington, Milwaukee; Medical Department of Columbia College, New York, 1888; aged 65; died, April 2.

Senior Solomon Bloomberg ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1905; aged 50; died, April 1.

Young M. Hitch, Hodges, S. C.; Barnes Medical College, St. Louis, 1896; aged 53; died, March 27, of heart disease.

Mason Franklin Woods, Waverly, Ill.; St. Louis University School of Medicine, 1908; aged 45; died, March 30.

John Chester Mack, Portland, Ore.; College of Physicians and Surgeons, Chicago, 1890; aged 63; died, March 30.

John Wesley Willson, Detroit; Detroit College of Medicine and Surgery, 1891; aged 72; died, March 29.

Patrick Michael O'Reilly, Newark, N. J.; Baltimore Medical College, 1902; died, April 4, of heart disease.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MERCODEL NOT ACCEPTED FOR N. N. R

Report of the Council on Pharmacy and Chemistry

Mercodel (formerly called Lueside) is a preparation of metallic mercury proposed by the Seydel Chemical Company for the treatment of syphilis. A clinical study of Mercodel which was made for the Council showed that while the drug produced marked therapeutic response, stomatitis might flare up suddenly in severe and even fatal form; contrary to the claims of the manufacturer, inflammatory reactions were set up in the veins by repeated injections. On the basis of the available evidence, the Council informed the Seydel Chemical Company that Mercodel had been found unacceptable for New and Nonofficial Remedies. The firm presented a reply accompanied by letters from users of Mercodel. The submitted evidence did not refute, but rather confirmed, the conclusions which led to the rejection of Mercodel and made clear that the conditions for a safe administration of Mercodel have not yet been found. The Council, therefore, affirmed its rejection of Mercodel and authorized publication of the report which follows.

W. A. PUCKNER, Secretary.

Mercodel (formerly called Lueside) is a preparation of metallic mercury proposed for the treatment of syphilis. According to the manufacturer (Seydel Chemical Company), Mercodel is obtained by triturating metallic mercury with glucose to a definite degree of fineness. Mercodel is supplied in ampules stated to contain 0.5 gm. of metallic mercury and 2.43 gm. of glucose. For use, the contents of an ampule are suspended in 50 c.c. of distilled water. This suspension is injected intravenously, intramuscularly or intraspinally.

Mercodel is claimed to produce therapeutic effects similar to those of soluble mercury salts, but to have a more sustained effect. It is claimed that the intramuscular injection of the suspension produces no pain or induration; that the intravenous administration causes no local reaction such as phlebitis, sclerosis or thrombosis of the vein and that no colloidoclastic or anaphylactic reactions are produced when it is injected intraspinally. Although the recommended dosage presents a much larger amount of mercury than is administered when the commonly used salts of mercury are employed, it is claimed that Mercodel injections are safe, free from objectionable features, and highly potent.

Since the administration of massive doses of metallic mercury by the intravenous route is a new therapeutic procedure, Dr. H. N. Cole, of the Department of Dermatology and Syphilology of the Western Reserve University School of Medicine, was asked to undertake a clinical study of Mercodel with particular reference to the safety and efficacy of the procedure. Dr. Cole accepted the task and, with the collaboration of Drs. J. G. Hutton, John Rauschkolb and Torald Sollmann, carried out a clinical study at the Cleveland City Hospital. An account of this work, "Metallic Mercury Suspensions, Therapeutic Results and Deleterious Effects of Their Intravenous and Intramuscular Injection," was published in THE JOURNAL, August 23, 1924, p. 593.

From this work, Cole and his collaborators conclude that intravenous injections of Mercodel produce marked therapeutic response as manifested by the rapid disappearance of spirochetes from the primary lesions, prompt clearing of the secondary lesions and improvement of the spinal fluid. They call attention to the fact that the quantity of mercury introduced in a "course" is very much greater than that introduced by any other method, and that a large quantity of mercury will remain in the body for a long time. They found that the injections did not provoke anaphylactoid reactions and appeared to have relatively little effect on the kidney

and intestines, but that they are likely to cause stomatitis, which may flare up suddenly in severe and even fatal form.

Contrary to the claim of the manufacturer, it was found that inflammatory reactions were set up in the vein by repeated injections. Intramuscular injections were found to present the same objections and uncertainties as the intravenous administration. As a result of their study, the investigators conclude that, until the conditions that influence the toxicity are better known and controlled, the risks are too great to justify the use of Mercodel.

On the basis of the available evidence, the Council held Mercodel unacceptable for New and Nonofficial Remedies. It adopted the report of Drs. Cole, Hutton, Rauschkolb and Sollmann for inclusion with the Annual Reports.

The preceding report was sent the Seydel Chemical Company for consideration. The firm requested opportunity to present further evidence and, therefore, the Council postponed publication of the report to await this evidence.

While the Council was waiting for the promised additional information, the Seydel Chemical Company sent out the following circular letter:

"*Dear Doctor:*—Knowing your interest in the spirochaeticidal properties of mercury, we are pleased to call your attention to an article on Mercodel by Cole *et al*, that appeared in THE JOURNAL of the American Medical Association, issue of August 23d, pages 593 to 611.

"Dr. Cole's article is very commendatory, but is also critical in regard to vein reactions. If such be your experience, we can suggest methods whereby same can be overcome or prevented.

"The activity of Mercodel should recommend it to you for the treatment of all cases of lues and particularly of such that have not responded favorably to other medications.

"As an example of the remarkable properties of Mercodel, we would refer to the enclosed reprint of an article by Major Frank G. Young of the United States Army.

"Welcoming your favors and inquiries, we are

"Very truly yours,

"SEYDEL CHEMICAL COMPANY.

(Signed) "By E. E. Smith."

Subsequently, the Seydel Chemical Company sent a four-page letter, copies of correspondence which had passed between the firm and Dr. Cole and copies of nine letters from users of Mercodel. In its letter the firm states:

"We are forced to state that Dr. Cole's investigation of Mercodel as reported in THE JOURNAL of the A. M. A. of August 23rd, 1924, is characterized in general by gross overdosage and by some undefined error in the technique of injection."

Dosage.—When the firm requested consideration of its product by the Council, it stated:

"There is one hard and fast rule in the administration of Lueside that must be invariably followed and this rule is that:

"LUESIDE MUST BE GIVEN TWICE WEEKLY IN STEADILY ASCENDING DOSES UNTIL DEFINITE SYMPTOMS OF MERCURY SATURATION APPEAR IN THE PATIENT.

"It is well to start with a small dose of Lueside, e. g., 20 ccs. of the standard Lueside solution for adults of average weight (the standard Lueside solution being the total contents of the ampoule dissolved in 50 ccs. of sterile distilled water at room temperature). This dosage should be increased by 5 ccs. each succeeding dose until a slight diarrhea or tenderness of the gums appears in the patient. These symptoms occur without any albuminuria or other serious reactions. The dosage should then be lowered slightly and kept just under the saturation point of the patient. Ten doses of Lueside constitute a course of treatment. Ten days after the last injection the Wassermann reaction may be taken."

A circular sent by the manufacturer at the time contains this:

"For adults of average weight 30 ccs. every three or four days Increase if required. Decrease if evidence of mercurialism (such as diarrhea) appears."

Dr. Cole's dosage in the four patients who showed markedly unfavorable reactions were as follows:

Patient 8: 20, 25, 30, 35, 40, 45 c.c.
Patient 10: 20, 25, 30 c.c.
Patient 12: 20, 25 c.c.
Patient 16: 20, 25, 30 c.c.

Thus the dosage was started *in every case exactly as recommended* by the firm, but instead of ten doses twice weekly in steadily ascending doses which the firm stated to constitute a course of treatment, *Cole gave only 2, 3, 3, and 6 of the doses!*

In a circular received from the manufacturer May 12, 1924, the first reduction of the dosage appears; but without any explanation that they had formerly advised a higher dosage. It will also be noted that the reduction is practically negatived by the concluding instruction:

"Treatment with Mercodel should be begun with low dosage. Initial dose—Males 10 to 15 ccs., females 5 ccs., of the standard solution of Mercodel. Administer Mercodel twice weekly in gradually ascending doses until some symptom of incipient mercurialism appears; then slightly decrease the dose and keep just under the saturation point of the patient."

"Subject to the discretion of the physician, ten or more doses of Mercodel, after the toleration point of the patient is found, constitute a course of treatment; similar courses to follow as required by the patient.

"There is one hard and fast rule in the administration of Mercodel that must be invariably followed, and this rule is: *Mercodel must be given twice weekly in steadily ascending doses until definite symptoms of mercury saturation appear in the patient.*"

In connection with the statement of the Seydel Chemical Company that the dosage employed by Cole was excessive, the circular letter of the firm to physicians should be considered. The last paragraph reads:

"As an example of the remarkable properties of Mercodel, we would refer to the enclosed reprint of an article by Major Frank G. Young of the United State Army."

It will be noted that in this circular letter no reference to the dosage of Cole and his collaborators is made; only a mild criticism is made of Cole's "vein reactions." Physicians are urged to use Mercodel on the basis of the work of Cole and his collaborators and of Young. If the firm believes that the investigation of Cole and his collaborators was "characterized in general by gross overdosage," it did physicians—and the public—an inexcusable wrong by not including a warning in this letter.

Instead, the Company sent with this letter a reprint of the article by Young in which amounts of Mercodel larger than those used by Cole and his collaborators were employed (Young began his treatment with an injection of 40 c.c. of the suspension, whereas Cole began with only 20 c.c.).

Similar disingenuousness is shown by the references to the observations of Cole and his collaborators on intramuscular injections. It is stated: "We admit having mentioned intramuscular injections in our presentation . . . but no such dosage as Dr. Cole so carefully details can conceivably be recommended." In the information which the Seydel Chemical Company sent the Council, it is stated: "Intramuscularly, to the amount of 200 or more mgs. of mercury twice weekly. . . ."

Vein Reactions.—The firm states in its letter to the Council:

"Had other technicians made the injections it is entirely within reason to expect that the cause of the irritation would have been established for it is clear that neither the metallic mercury nor the glucose in Mercodel have any corrosive effect upon the vein walls and that attributes cannot be attached, which this drug does not possess."

Cole and his collaborators proved by microscopic examination that if metallic mercury enters the vein wall it causes a severe inflammation.

Letters from Physicians.—The Seydel Chemical Company submits a number of letters from physicians in support of its contentions:

EXHIBIT I: A report signed by two physicians on twenty-eight cases. The clinical improvement after Mercodel was marked, as was reported by Cole. Several cases of thrombosis of the veins are reported; these were attributed to the injection being given by partially trained internes unfamiliar with intravenous technique. This exhibit shows that these physicians had about the same unfavorable experiences of Cole and his collaborators, whose injections, however, were made by an exceptionally well-trained resident physician who had given thousands of intravenous injections.

EXHIBIT II: Use limited to a few cases. No trouble at the site of injection except when some of the preparation has entered the tissues around the vein. "I consider the average dose to be 10 to 15 ccs." The latter statement should be compared with the doses of 40 to 50 c.c. used by Young as reported in the reprint sent by the Company to physicians with their circular letter after the appearance of Cole's paper.

EXHIBIT III: Five cases. "The short period of five months does not enable us to state how far we have tended towards a

cure" (in the case of three tabetics). "We have found that the drug should not be pushed too fast, period of administration every five days to one week." According to the company the drug must be given twice weekly in steadily ascending doses. "Mercodel does not seem to possess any toxicity as a drug," but in one case "Five hours after this injection the patient sat up with violent irritation in the stomach attended by constant vomiting for 24 hours" but this, according to the report, "was not due to the drug but to the condition of the patient which caused the reaction to be severe." Thus there was one extremely severe reaction in five cases and this with dosage far below that recommended by the company.

EXHIBIT IV: No details—the results with Mercodel were as good as with any other type of intravenous treatment. States that he has noticed no cumulative action or vein complication "when properly given."

EXHIBIT V: Stated to be a general statement. "Some phenomenal results . . . particularly those which did not react well to neo-salvarsan and intra-muscular mercury (calomel)"—used it without there being any reaction in the vein itself but abscesses sometimes formed over the vein where the mercury was injected into the fascia and skin.

EXHIBIT VI: Physician who states that his "technique ought to be fair" as he has given twelve to fifteen thousand intravenous injections. Has read the article of Cole and states: "As I mentioned in a previous letter of mine, there is a certain proportion of cases that will develop a thrombosis of the vein"—"you can count on about one out of every ten Mercodel injections producing a thrombosis." "I do not feel that you should make the statement that it does not produce an irritation to the endothelial cells of the vein, because in a certain percentage of cases, it does." . . . "all the points in technique that you have advised, I have carried out to the most infinite detail . . . I feel certain that the users of this drug should be told that a certain percentage will produce a thrombosis." This report is dated Sept. 19, 1924. The company wrote on Nov. 7, 1924, that Cole's investigation was characterized by "some undefined error in the technique of injection," and insinuated that Cole's house-officer who gave the injections was incompetent and added, "Had other technicians made the injections it is entirely within reason to expect that the cause of the irritation would have been established, for it is clear that neither the metallic mercury nor the glucose in Mercodel have any corrosive effect upon the vein walls, and that attributes cannot be attached which this drug does not possess."

It is further stated in the report that the author's results in central nervous system syphilis have been extremely good, but that he accompanies Mercodel injections with alternate injections of sulpharsphenamin. (The company makes no mention in its circular of the use of Mercodel in conjunction with the arsenicals.)

EXHIBIT VII: Contains no positive data.

EXHIBIT VIII: "As to accurate results from the preparation it is at present impossible to say." In cases of general paralysis, "I still however have hope of finding some good results with Mercodel." "I have had two cases that I had to stop treating on account of occluded veins. The drug, I will have to admit, is very irritating to the vein wall and several veins have become occluded around the site of injection." This report should be compared with the company's claim that Mercodel does not produce vein reactions. The writer reports that he tried using smaller needles and states that his results have been more satisfactory.

EXHIBIT IX: Has the rather equivocal statement: "I have noticed no more fibrosis or other injury to the vein than with any other intravenous product ordinarily used in lues." The dosage is stated to have been generally "lower than that which you first advocated."

The evidence submitted by the Seydel Chemical Company does not refute, but rather confirms, the data and conclusions of Cole and his collaborators. It is clear that the conditions for a safe administration of Mercodel have not yet been sufficiently established to justify its admission to New and Nonofficial Remedies; therefore, until such evidence is forthcoming, the Council affirms its rejection of Mercodel. It authorized publication of the original report along with the circular letter of the Seydel Chemical Company which makes unwarranted use of the report by Cole and his collaborators, and a report on the supplementary evidence submitted by the Seydel Chemical Company.

Correspondence

MALARIA TREATMENT OF PARESIS

To the Editor:—In the interesting report by Dr. Watson W. Eldridge and others on the treatment of paresis (THE JOURNAL, April 11, p. 1097), the authors state that they injected the blood from the donor patient "into the subscapular connective tissue." In Wagner-Jauregg's clinic the blood is injected intramuscularly, subcutaneously, intracutaneously and extracutaneously, thus imitating the movements of the anopheles mosquito. This is accomplished by injecting the needle deep in the muscles and withdrawing it slowly after each evacuation until there are left fifteen or twenty drops, which are injected on the skin by scarification. According to the authors' report, "the inoculation failed in ten cases" out of sixty-eight. Perhaps by using Wagner-Jauregg's method, the inoculations could be more successful.

Without doubt there are some persons who are immune to malaria; but often this failure is due to faulty technic. I would suggest that, if a properly made first inoculation failed, the second inoculation be tried intravenously with 4 c.c. of blood or even more, up to 10 c.c. (!). In some cases, by using this method, we succeeded with the inoculation at the second or third attempt.

The authors state that they used "about 2 c.c." In the Vienna clinic we used at least 4 c.c. by the combined intramuscular and subcutaneous, intracutaneous and extracutaneous method, and at least 2 c.c. by the intravenous method. Perhaps this small amount of blood can explain why the authors sometimes had so long an incubation period as "thirty-four days."

The authors withdrew the blood "shortly after a paroxysm." Our experience in the Vienna clinic proved that there is absolutely no difference when the blood is withdrawn before, during or after a paroxysm.

In St. Elizabeth's Hospital, patients were sent "to one ward which was well screened, and confined there until their treatment was complete." The investigations in the Vienna clinic of Professor Vivaldi (from Rome) and Dr. Kauders, clinic assistants, proved that in this artificial malaria the transmission of the infection by the anopheles mosquito is impossible, owing to the absence of gamete (sexual) forms of the parasites in the blood, or to other reasons—it is not yet exactly understood—but it is a fact. Therefore there is no necessity for strict isolation, as these patients cannot serve as a source of infection.

The authors "let each patient have from sixteen to eighteen paroxysms." The largest number of paroxysms that we permitted in the Vienna clinic was twelve. It seems to me that eighteen paroxysms constitute too great a risk, even for a patient in good physical condition.

Sometimes it is possible to provoke malaria by injection of milk, typhoid vaccine, etc. In cases in which the paroxysms subside spontaneously, this provocation should always be tried.

The authors use the tertian type, which, according to the description, often was changed to the double tertian type. We are working here in the Cleveland State Hospital with a double quartan type, and it seems that they are equally valuable. It is dangerous to use the estivo-autumnal type only.

The authors state that "this method of treatment . . . is easily controlled, and with ordinary hospital care should present no serious difficulty or constitute an unusual risk." Although it is so, this treatment should be tried only in a well equipped institution and given by trained men who are

thoroughly acquainted with general paralysis as well as with malaria. In some countries in Europe it is forbidden by law to employ this treatment in private practice, and I believe that the same measure should be taken in this country.

As is seen from the reports in this country, this undoubtedly effective treatment is becoming more and more popular, and every day is tried in more and more places, and I believe, therefore, that my few practical remarks will be of value, especially for those who begin it now. A special book about neurosyphilis and malaria, which Dr. Eisenberg of St. John's Hospital in Cleveland and I are preparing for print now, which will include also the translations of the most important articles in foreign languages about this question, and Professor Wagner-Jauregg's introduction, and which will be published next June, will give more information about this treatment and will help to make it as popular as it is in Europe, and as it deserves.

M. K. AMDUR, M.D., Cleveland.

CANCER STATISTICS

To the Editor:—Vital statistics, their collection and their interpretation presuppose a dual type of training. Biometrics (of which vital statistics is a part) is simply mathematics applied to a biologic problem. The mathematics involved is far the simpler consideration, for in order to have the deductions of value, the student must have a clear-cut conception of all the underlying biologic factors that influence the collection of the data with which he is working. Obviously, one is not entitled to use a precision measure indicating that the result is correct to one part in 100, if in the collection of one single factor there is a probable error of 10 per cent.

To add, multiply or divide, to figure rates per hundred thousand, is nothing but simple arithmetic. To know the limitations of differential diagnosis, the difficulties in the interpretation of physical signs and laboratory data, to have made out death certificates in which one cannot be absolutely sure, even of the primary cause of death, are all necessary experiences before one is at liberty to interpret vital statistics.

A group of statisticians contends that the incidence of cancer is actually increasing; others say that the increase is only apparent and not real, that it is due to better diagnosis, to better reporting of the causes of death, etc. It is certainly important for us to know the truth, because science is dependent on truths, and, furthermore, such knowledge may influence our methods of attack on the problem. In order to arrive at a basis for the comparison indicated, it is obviously best to select census years which are sufficiently separated to show any changes (if, indeed such changes exist) so that we are not forced to draw conclusions from slight differences in data, from which deductions of the kind to be made are not warranted, simply because the slight differences shown are not significant in view of the precision of the biologic data subjected to analysis. For many reasons it is thought that a recent ten-year period could best serve our purpose, and for this reason the years 1910 and 1920 have been selected. The intervening census years have been examined in order to make sure that the years selected were representative and that no particular factor, not usually operating, was met in the two years cited.

In the interpretation of vital statistics based on mortality rather than morbidity, many seem to feel that there is a great element of precision which allows the manipulation of such data in a purely mathematical manner, and that deductions stated with great mathematical accuracy are warranted. Whatever may obtain elsewhere, this certainly is not true in cancer. It is not necessary to point out to the physician that neither tumor nor cachexia, nor both occurring in one person, are pathognomonic of cancer. One or both of these conditions are frequently met in the anemias, in arteriosclerosis and the like, and until we have a different attitude on the part of the public toward postmortem examinations, these great factors will always influence our vital statistics, even our mortality reports.

We must, too, be careful of false correlation. Only recently it has been stated that the cancer curve has paralleled the increased use of machinery; but to prove that these bear a cause and effect relationship to each other is quite another matter.

From 1910 to 1920 there is a reported rate increase in the incidence of cancer from 76.2 to 83.4 per hundred thousand, or more than 9 per cent.

1. What are the important differences in the U. S. registration area of 1910 and 1920?

2. What factors or appliances have entered the field of medicine to help in making a better diagnosis of cancer?

3. To what extent has the saving of lives in the lower age groups increased cancer as one of the causes of death in the upper age groups?

Let us analyze the statistics of these three years before we answer.

Cancer, Including Sarcoma and Hypernephroma

	1910			1915			1920		
	Total Deaths	Per Cent. of Total Deaths	Rate per 100,000	Total Deaths	Per Cent. of Total Deaths	Rate per 100,000	Total Deaths	Per Cent. of Total Deaths	Rate per 100,000
Buccal cavity.....	1,576	3.8	2.9	2,123	3.9	3.2	2,679	3.7	3.1
Stomach and liver.	16,475	40.1	30.6	21,221	38.9	31.5	27,489	37.7	31.4
Peritoneum, intestine and rectum..	5,256	12.8	9.8	7,332	13.4	10.9	9,792	13.4	11.2
Female generative organs.....	6,147	15.0	11.4	8,120	14.9	12.1	10,797	14.8	12.3
Breast.....	3,730	9.1	6.9	5,168	9.5	7.7	6,665	9.1	7.6
Skin.....	1,459	3.6	2.7	1,955	3.6	2.9	2,367	3.2	2.7
Not specified.....	6,394	15.6	11.9	8,670	15.9	12.9	13,142	18.0	15.0
Total.....	41,039	100.0	76.2	54,584	100.0	81.2	72,931	100.0	83.4

We are not warranted by the precision of the data in using the number of significant figures shown in the column entitled "Per Cent. of Total Deaths."

The mathematics has been extended in order to make more apparent the differences, should any such exist.

The rate per hundred thousand has increased from 1910 to 1920. In 1917 and 1918, much comment was provoked by the apparent arresting of the upward trend of the cancer curve, and many explanations were advanced to account for it, such as: (1) The educational program intended to reach the public with the message that early cancer is curable has begun to bear fruit; (2) the war time diet influenced the cancer rate; (3) the influenza pandemic took its greatest toll in the least cancerous age groups.

1. Subsequent statistics have proved the incorrectness of the first theory.

2. The theory that the war time diet of the country had influenced the cancer rate was most interesting. Diet (on the calorie basis) is terribly over-emphasized as a factor in public health problems, and again we must recall that there was really no very great national change in our modes of living (including diet) during the war. While not attempting to answer the question raised by the statistics of 1917 and 1918, we must remember that the flower of the medical profession was abroad or in camps on this side; that, to take their places, many graduates who had never before practiced medicine and many retired physicians were pressed

into service to meet the public needs. I have no doubt that this accounted for the difference in our vital statistics.

3. That the influenza pandemic took its greatest toll in the age groups in which cancer is not particularly met is, I believe, an established fact. Many have asserted that the decrease of deaths due to lowered infant mortality, the reduction in typhoid fever, tuberculosis and the like give an increased incidence in those diseases of the upper age groups, of which cancer is one. When we recall that effective work of this kind has been in operation only ten or fifteen years, it is difficult to imagine that the child hygiene and typhoid fever (a disease usually of adolescence) prevention programs would have yet brought great numbers of persons into the age groups in which cancer takes its greatest toll.

Perhaps there is some reason to consider tuberculosis alone —this disease has caused (and is causing) so great a mortality. Furthermore, we must recall here that the effective work in preventing tuberculosis has apparently decreased the mortality from this dread disease nearly 50 per cent. This is a factor worthy of some consideration, but it may be stated here that the average (and it is very dangerous to deal with averages) age of death as computed from the 1920 mortality statistics is about 35 for tuberculosis, while the same for cancer is over 55 years.

Let us examine the table for cancer mortality in the years 1910, 1915 and 1920. We note that there has been a great increase in the total number of deaths from cancer, and also in the deaths from cancer in the various locations of the body. Undoubtedly, most, if not all, of this increase is due to the addition of Minnesota, Montana and Utah (1910), Kentucky and Missouri (1911), Virginia (1913), Kansas (1914), North Carolina and South Carolina (1916), Tennessee (1917), Illinois, Louisiana and Oregon (1918), Delaware, Florida and Wisconsin (1919), and Nebraska (1920) to the registration area of the United States as it existed in 1910.

The group recorded as "not specified" amounts to from 15 to 18 per cent., unfortunately. This must be interpreted as representing a probable error in the statistics of cancer as reported by location of nearly this magnitude.

There is no one who would claim that our ability to diagnose cancer of the buccal cavity, breast or skin (which caused the death of the patient) was much better in 1920 than in 1910, but it might be thought that the development of the roentgen ray, particularly if it had been more widely used, might have shown an increased incidence in cancer of the stomach, peritoneum and intestines. No such increase is apparent from an examination of the distribution of cancer in various anatomic locations in 1910, 1915 and 1920.

Besides the increase in the total deaths from cancer in the various years shown, there is also quite a definite increase in the rate per hundred thousand. However, quite a percentage of this increase is found under the head of "not specified," which is, without question, the least reliable of any of the figures given.

Some of the statements made above are further strengthened by a report entitled "Mortality from Cancer," etc., prepared in 1914 by the U. S. Bureau of the Census, which is a special study of the incidence of the disease. This is the most careful statistical study of cancer in the United States that has ever been made. The following facts are gleaned from the report cited.

About 2,000 death certificates from an estimated 50,000 deaths from cancer were examined, and it was found that in only 2 per cent. of the cases was the diagnosis confirmed by necropsy, and in only another 9 per cent. had an operation confirmed the clinical diagnosis.

On the basis of the returns for 1913, it was assumed that about 8,500 deaths would be reported as due to cancer of the buccal cavity, skin and breast, "all so situated that no mistake would be probable in diagnosis, and that these, therefore, could be classified as of reasonably certain malignancy." This would mean that in 14,000 cases the diagnosis was "reasonably certain," leaving 36,000 cases in which it was proposed to write to physicians for additional information. About 35,000 letters were sent to physicians, and replies were received in about 80 per cent. of the cases, with the result that the bureau was able to compile 30,555 deaths; 58.3 per cent. of the total appeared under the caption of "Diagnosis Reasonably Certain," 27.5 per cent. under "Diagnosis Uncertain," and 14.2 per cent. under "Diagnosis Unknown." With this lack of accurate and definite information in the best cancer study that has ever been undertaken in the United States, are we justified in assuming that a recorded increased change in the death rate from 76.2 per hundred thousand in 1910 to 83.4 in 1920 is indicative of an increased incidence in cancer?

With a definite admitted lack of precision of 14.2 per cent. and a possible error of 41.7 per cent. in the collection of the statistics, are we justified in attaching any importance to a change in the end-result of the magnitude of less than 10 per cent.?

Obviously, we have not statistics of sufficient accuracy at hand to be certain that cancer is increasing, and the burden of the proof that it is must rest with those who assert that such is the case.

J. E. RUSH, M.D., Lexington, Ky.
Director, Department of Hygiene and Public Health, University of Kentucky.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DERMATITIS FROM BENZIN

To the Editor:—I would appreciate any information or suggestions relative to dermatitis of the hands and forearms of men employed in paint shops using a blower as the means of applying the paint. The men are using benzin to wash their hands, which seems to do more harm than the paint itself. Can you recommend anything that would serve as a cleansing agent and at the same time be easier on the skin than benzin?

EDMUND KNAUF, M.D., Sheboygan, Wis.

ANSWER.—Many cases of skin disease were reported from the printing trades of Berlin in 1913 and were traced to the introduction of a benzin-containing fluid for cleaning ink from type. The disease was described as a localized eczema with redness, tenseness, blisters and scaling. Many of the other agents used to remove ink and paint from the skin, such as turpentine, petroleum and those containing lye, may also injure the skin.

McConnell, in a study of the relationship between the dermatoses in printers and the use of printers' ink, recommended that those who handled inks should be required to rub into the pores of the hands and arms hydrous wool fat or a mixture of equal parts of hydrous wool fat and olive oil, and that to remove the ink without injury to the skin—at the lunch hour, for example—they should use sawdust moistened with liquid soap which, together with warm water, readily removes the ink without injuring the skin. The hands should then be rinsed in plain warm water and dried.

There is a miscellany article on this work in THE JOURNAL, Nov. 26, 1921, p. 1760, in which it is said that these skin lesions respond readily to treatment with calamine paint, which is composed of prepared calamine, N. F., 3 parts; gelatin, 4 parts; glycerin, 5 parts, and water, 6½ parts.

Should our correspondent desire further information than the article in THE JOURNAL gives, Kober and Hayhurst's "Industrial Health," published by P. Blakiston's Son & Co., 1912 Walnut Street, Philadelphia, covers the subject fully.

METHODS FOR ESTIMATING BLOOD UREA

To the Editor:—Is there any simpler method for estimation of blood urea than the one recommended in the 1920 edition of "Blood and Urine Chemistry," by Gradwohl and Blaivas? This method takes at least two hours when everything is at hand, and it asks for special apparatus — a Chapman suction pump, graduated glass cylinders, glass tubings with sealed ending and needle holes inside — all things not very easy to procure.

OVILA BIRS, M.D., Coaticook, Que.

ANSWER.—There is in reality no simple method for estimating the blood urea. All the tests at present in vogue depend on the hydrolysis of the urea by urease into ammonia, and the later estimation of the ammonia formed in the process. The method outlined by Gradwohl and Blaivas is the one originated by Myers, and does require much time and considerable apparatus. Possibly the method of Folin and Wu (*J. Biol. Chem.* **38**:81 [May] 1919) would be more suited to the equipment of our correspondent, although this test is one that requires much more attention to actual detail than does the one of Myers. If one wishes to perform such tests as that for blood urea, one must have a certain equipment, as any makeshift will give worse than useless results. We should advise our correspondent to look into the Folin and Wu test to see whether this may meet his conditions. A discussion of this method may be found in the textbooks of Simon, Cummer or Webster on clinical diagnosis.

PROGNOSIS OF DIABETES IN A CHILD

To the Editor:—Please advise me regarding the prognosis in a moderately severe case of diabetes mellitus in a child, aged 5 years. Under dietetic and insulin treatment, this child is sugar free and is gaining in weight. She continues to pass a large volume of urine daily, however, usually 1,750 c.c. or more with a normal specific gravity. How do you explain this?

G. F. H., Calif.

ANSWER.—The prognosis of a moderately severe case of diabetes mellitus in a child, aged 5 years, is doubtful. Insulin has not been used long enough to determine whether or not a child will regain enough pancreatic function to develop normally. If the diet and insulin can be steadily maintained, the child would surely pass the dangerous periods that were characteristic of juvenile diabetes before the use of insulin. Whether such a patient ever will be able to live without insulin remains for the future to determine.

The large amount of urine with a normal specific gravity is not an unusual finding in diabetic children. It might be suggested, however, that a blood sugar control be made to be more sure of the metabolic status. The inquirer should see particularly the editorial, "Possibility of Recovery from Diabetes Under Insulin" (THE JOURNAL, April 18, 1925, page 1183).

WIDAL TEST IN TYPHOID FEVER

To the Editor:—1. Is a positive Widal reaction in a dilution of 1:80 diagnostic of typhoid fever, or can it be produced by serum reaction from other bacteria? 2. In a case of a positive Widal reaction after a negative blood culture, would it be wise to repeat the blood culture? 3. Can a positive Widal reaction be gotten from a general septicemic condition, supposedly influenza?

J. W. HOPKINS, M.D., Hinsdale, Ill.

ANSWER.—1. The macroscopic method of performing a Widal test is the preferable one. If a patient's serum gives a reaction of 1:80 macroscopically with *B. typhosus*, it could be considered diagnostic provided clinical signs of typhoid fever are present, that the patient has not previously been vaccinated against typhoid fever, and that a reaction is negative or less than 1:80 with closely allied biologic groups, such as *B. paratyphosus* A and *B. paratyphosus* B. Generally speaking, the Widal test, when performed macroscopically, can be considered diagnostic in direct ratio to the highest dilution in which positive results are recorded. For instance, a positive test in 1:200 dilution would be more definitely diagnostic than a dilution of 1:50, provided all the factors mentioned above are taken into consideration.

2. It is always wise to repeat diagnostic laboratory tests in cases of typhoid, particularly when the clinical signs are not clear cut. In fact, many laboratories urge that not only should Widal's test be done, but blood cultures as well, and it is particularly important to submit specimens of feces and urine for examination early in the disease.

3. A positive reaction in low dilutions may be obtained in other diseases, but again the interpretation of the value of such a reaction can be subjected to the same limitations as given above.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12-13. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Allison A. Pringle, Eureka Springs; Sec., Eclectic Bd., Dr. C. E. Laws, Fort Smith.

FLORIDA: Tampa, June 15-16. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.

GEORGIA: Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

GEORGIA: Atlanta, June 10-12. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: Kansas City, June 16. Sec., Dr. Albert S. Ross, Sabetha.

KENTUCKY: Louisville, June 9-11. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

MARYLAND: Baltimore, June 16-19. Sec., Reg. Bd., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MARYLAND: Baltimore, June 9-10. Sec., Homeo. Bd., Dr. J. S. Garrison, Ten Hills, Baltimore.

MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MICHIGAN: Ann Arbor, June 9-11. Acting Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A medical schools. Parts I and II, June 24-26. All applications for this examination must be made on or before May 25. Sec., Dr. J. S. Rodman, 1600 Walnut St., Philadelphia.

NEVADA: Carson City, May 4. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, June 16-17. Sec., Dr. Alexander Macalister, State House, Trenton.

OHIO: Columbus, June 9-12. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

WYOMING: Cheyenne, June 8-10. Sec., Dr. J. D. Shingle, Citizens Bank Bldg., Cheyenne.

West Virginia January Examination

Dr. W. T. Henshaw, secretary, West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, Jan. 13, 1925. The examination covered 11 subjects and included 110 questions. An average of 80 per cent. was required to pass. Of the 9 candidates examined, 8 passed and one failed. Seven candidates were licensed by reciprocity, and one candidate was licensed by endorsement of credentials. The following colleges were represented:

PASSED		Year Grad.	Per Cent.
Emory University		(1924)	84.3
Loyola University		(1918)	80.4
University of Maryland		(1924)	88.8
Harvard University		(1923)	91.1
University of Pennsylvania		(1924)	92.5
Medical College of Virginia		(1924, 2)	86.2, 89.5
McGill University		(1923)	89.9

FAILED		Year Grad.	Per Cent.
University of Lille, France		(1905)*	64.1

LICENSED BY RECIPROCITY		Year Grad.	Reciprocity with
Emory University		(1914)	Georgia
University of Louisville		(1912)	Tennessee
Johns Hopkins University		(1920)	New Jersey
Albany Medical College		(1904)	New York
Long Island College Hospital		(1914)	New York
Jefferson Medical College		(1904)	Delaware
Medical College of Virginia		(1918)	Virginia

ENDORSEMENT OF CREDENTIALS		Year Grad.	Endorsement with
Queen's University		(1905)	Canada

* Graduation not verified by the American Medical Association.

California February Reciprocity Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports that 64 candidates were licensed by reciprocity and one candidate by endorsement of credentials at the meeting held at Los Angeles, Feb. 9-12, 1925. The following colleges were represented:

LICENSED BY RECIPROCITY		Year Grad.	Reciprocity with
University of Arkansas	(1908)	Arkansas, (1912)	Arkansas
Denver and Gross College of Medicine		(1907)	Utah
Atlanta Medical College		(1916)	Alabama
American Medical Missionary College		(1904)	Michigan
Chicago College of Medicine and Surgery		(1910), (1913)	Illinois
Chicago Homeopathic Medical College		(1901)	Idaho
College of Physicians and Surgeons, Chicago		(1903)	Minnesota
Hering Medical College		(1902)	Illinois
Northwestern University	(1906)	Oklahoma, (1914)	Iowa
Rush Medical College	(1884)	Nebraska, (1889) (1893) Illinois, (1902) Washington, (1916) Illinois	Montana
University of Illinois		(1918), (1920)	Illinois
Indiana University		(1912)	Indiana

State University of Iowa College of Medicine	(1907)	Montana
College of Physicians and Surgeons, Kansas City	(1898)	Kansas
Kansas Medical College, Topeka	(1900)	Washington
University of Kansas	(1911)	Kansas
Hospital College of Medicine, Louisville	(1897) (1898)	Indiana
Louisville Medical College	(1896)	Missouri
University of Louisville	(1912)	Kentucky, (1914) W. Virginia (1916) Oregon
Tulane University	(1922)	Louisiana
Johns Hopkins University	(1917)	New York, (1921) Maryland
Harvard University	(1892)	Illinois, (1915) R. Island
Detroit College of Medicine	(1906)	Michigan
Detroit Medical College	(1869)	Michigan
University of Michigan Medical School	(1903)	Ohio
University of Minnesota	(1897), (1908),	(1922) Minnesota
Kansas City Medical College	(1890)	Kansas
Missouri Medical College	(1894)	Oregon, (1899) Illinois
University Medical College of Kansas City	(1907)	(1908), (1911) Kansas
Creighton Medical College	(1923)	Nebraska
Nebraska College of Medicine, Lincoln	(1907)	Nebraska
University of Nebraska	(1910)	Oklahoma, (1915), (1923) Nebraska
College of Phys. and Surgs. in the City of New York	(1894)	New York
Fordham University School of Medicine	(1918)	New York
Toledo Medical College	(1896)	Ohio
Jefferson Medical College	(1917)	Alabama
University of Pittsburgh	(1909)	Penna.
Woman's Medical College of Pennsylvania	(1892)	New York
University of Nashville	(1907)	Missouri
Vanderbilt University	(1915)	Colorado, (1921) Louisiana
McGill University	(1902)	Louisiana, (1919) Minnesota
Queen's University	(1905)	N. Dakota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Pennsylvania		(1899)	Hawaii

Book Notices

REJUVENATION. The Work of Steinach, Voronoff, and Others. By Norman Haire, Ch.M., M.B. Cloth. Price, $2.75. Pp. 223, with 4 illustrations. New York: The Macmillan Company, 1925.

The author has endeavored to make his topic intelligible to laymen as well as to physicians; has collated the published reports of various clinicians, known and unknown, on testis transplantation, vasoligation, ovary transplantation and "stimulation" by the roentgen ray, and reports the cases of four of twenty-five men on whom he performed vasoligation; the most notable feature of these is the reduction of the systolic blood pressure in one patient from 200 to 150 mm. within six months after operation. Unlike some writers on this subject, the author does not claim everything for these operations, but states that in carefully chosen cases, those in which senility has not advanced too far, and in which there is no organic disease, vasoligation may be useful, by lowering high blood pressure, increasing mental and muscular energy, and possibly by increasing sexual desire and power. He states, though without adducing proof for the statement, that transplantation of a testis may succeed when vasoligation and vasectomy fail.

TEXT-BOOK OF PATHOLOGY. By Robert Muir, M.A., M.D., Sc.D., Professor of Pathology, University of Glasgow. Cloth. Price, $8.50. Pp. 774, with 433 illustrations. Philadelphia: J. B. Lippincott Company, 1924.

This textbook is based on the course by the author in the University of Glasgow, where he has been professor of pathology since 1899. It deals chiefly with the structural changes of disease, but also the clinical, the experimental and the chemical sides of pathology are considered. Systematic bacteriology is omitted; so are diseases of the special senses and of the skin, tropical diseases, systematic parasitology and systematic teratology; but the most important parasites and the chief congenital anomalies are considered briefly in connection with different organs. The subject matter falls into two main portions, corresponding roughly to general pathology and special pathologic anatomy; but no sharp distinction is drawn between the divisions. Comparatively few references are given, and little attention is given to historical matters. Most of the illustrations are original, and all are of uniform high quality and instructional value. American teachers will wish that "tuberculous" had been used in place of "tubercular"; from our point of view, sufficient emphasis probably has not been placed on so-called focal infection; one wonders why Hodgkin's disease should be called by preference lymphadenoma; it is to be regretted that only one iso-agglutinative blood grouping is given; those interested especially in animal parasites will note that nothing is said about the migration through the lung of *Ascaris* larvae. These are wholly minor matters, and it is a pleasant duty to state that Muir has given us a thoroughly reliable and adequate book on pathology, of reasonable length, and well adjusted to the crowded state of the medical curriculum.

THE DIAGNOSIS AND TREATMENT OF THE INFECTIOUS DISEASES. A Manual for Practitioners. By Frederic H. Thomson, M.B., C.M., D.P.H., Medical Superintendent of the North-Eastern Hospital of the Metropolitan Asylums Board. Cloth. Price, 7 shillings 6 pence. Pp. 208, with 10 illustrations. London: H. K. Lewis & Co. Ltd., 1924.

The present epoch is not an easy one in which to write a textbook on infectious diseases. Our knowledge is progressing so rapidly that textbook material is out of date within the few weeks necessary to put it on the press. Dr. Thomson's text, for example, makes mention only of the Schultz-Charlton skin reaction, and says nothing whatever of the fact that the disease is caused by a toxin and probably will be treated in the future by antitoxin. Indeed, the author is remarkably careful to state: "After a lengthy trial of vaccines, I am unable to say that this treatment is of any value" —a sort of inverted negative, reminiscent of President Wilson's "May I not." In epidemic encephalitis, he bases his discussion almost wholly on the brief outline prepared by MacNalty five years ago. On the whole, the text is so inadequate as to merit but little approval.

THE POWER OF A SYMBOL. By Lee Alexander Stone, M.D. To which is added The Worship of Priapus, by Hargrave Jennings; Phallicism in Japan, by Edmund Buckley; Prostitution in Antiquity, by Dr. Edmund Dupouy (Translated by Thomas Minor, M.D.). Boards. Price, $10. Pp. 301. Chicago: Pascal Covici, 1925.

In this volume the author presents a brief essay on phallic worship, concluding with an outline of the subject based on an extensive reading of numerous books collected for his personal library over many years. Many phallic customs are medical in character and closely associated with diseases of the generative organs. Phallic symbolism has also played a considerable part in most of the religions of the world. Following the presentation of the bibliography of the subject, the volume is completed by reprints on "The Worship of Priapus," by Hargrave Jennings; "Phallicism in Japan," by Edmund Buckley, and "Prostitution in Antiquity," by Dr. Edmund Dupouy. The book is well printed on heavy stock, and constitutes a valuable addition to any special collection of works of this nature.

ALFRED WORCESTER. A Tribute to a physician of Massachusetts. Containing Eighteen Articles Reprinted from the Writings of Dr. Alfred Worcester, One Article from the Writings of Dr. Edward R. Cutler, and Four Sketches by Mr. Russell T. Hyde. Cloth. Pp. 339, with illustrations. Boston: The Four Seas Company, 1925.

In honor of the seventieth birthday of Alfred Worcester, who was president of the Massachusetts State Medical Society from 1919 to 1921, his friends gave a banquet, Dec. 1, 1924. For this occasion a book containing a brief account of the life of Dr. Worcester was prepared, and reprints of all his contributions to medical literature were included. This volume exemplifies the manner in which a general practitioner may contribute to the progress of medical science and to public health, as well as to organizations and to medical education. It is well that such recognition should come to a citizen during the period of his life.

BACTERIA IN RELATION TO MAN. A Study-Text in General Microbiology. By Jean Broadhurt, Ph.D., Associate Professor of Biology, Teachers College, Columbia University. Cloth. Price, $3. Pp. 306, with 147 illustrations. Philadelphia: J. B. Lippincott Company, 1925.

The study of bacteria themselves follows three chapters devoted to green or independent plants, the cell and molds. Sterilization, the relations of bacteria to water and milk and economic phases of bacteriology are emphasized. There is a chronological table of events in the development of bacteriology as a science. The presentation is in outline form, with plans for demonstrations of practical work. There are numerous illustrations, and bibliographies are appended for each subject.

Miscellany

CANCER IN NONCIVILIZED RACES

After an exhaustive and impartial review of the evidence with regard to the incidence of cancer in the tropics, Snijders and Straub, in the transactions of the Far Eastern Association of Tropical Medicine, conclude that the available data are insufficient to determine this question, since vital statistics are almost wholly lacking. They insist, however, that the question, "Why is cancer rare in the tropics?" must be changed to "Why is the site incidence in cancer as seen in the tropics different from that observed in Europe?" The authors say, the *Medical Journal of South Africa* points out, that among Asiatics primary hepatic carcinoma is remarkably frequent, that intestinal carcinomas are rare, and that the age incidence in uterine cancer is remarkably low. They conclude in reviewing available literature that the alleged rarity of cancer in the tropics is more apparent than real, chiefly because the age incidence is not taken into account, and that when we are in a position to compare reliable data, it will be found that there is no great difference in the incidence of European and tropical groups, but that there does exist a remarkable difference between the two as regards the site incidence of cancer.

VENEREAL DISEASE CONTROL

The conference of venereal disease control officers of state health departments and the United States Public Health Service, held at Hot Springs, Ark., in December, 1924, outlined policies for the administration of clinics receiving public support and principles that should guide in the treatment of venereal diseases. A special committee of the conference appointed in Decmber, 1923, recommended these policies and principles, after studying the practice of the venereal disease clinics in this country. The resolutions that were adopted embodied the report of this committee and were notable for the absence of proposals for the enactment of compulsory legislation.

The following policies were adopted as regards the clinics: No clinic that receives federal or state support should treat patients who are able to pay for treatment. The manner of referring such patients to private practitioners should be arranged by agreement between the clinic and the local physicians. The standard of ability to pay is only one of many problems which necessitate the inclusion of trained social workers on the staff of a venereal disease clinic. The social service traces sources of infection, induces contacts to undergo examination, and follows up clinic patients who fail to return for treatment. The resolutions further describe the most desirable forms for clinic records.

Before discussing standards of treatment, the conference made it plain that the patient must be individualized. Particular emphasis was given the value of consultation with the syphilologist and with recognized experts in several other fields to secure complete examinations of the nervous system, the fundus, fields and reflexes of the eye, the cardiovascular system and the cerebrospinal fluid. At certain periods of the disease, roentgenographic and fluoroscopic examination should be made of the heart and aorta. The children of a syphilitic patient should also receive the benefit of consultant service by specialists. With a complete understanding of the necessity of individualization of the patient, the conference stated that it was still possible to outline an effective standard treatment for early uncomplicated cases. This outline is embodied in the transactions, U. S. Public Health Service, Venereal Disease Bulletin 77, February, 1925.

The following significant resolution was adopted:

WHEREAS, Organized efforts in combating the venereal diseases in the United States during the last ten years have progressed steadily toward a practical program which has secured the public support; and

WHEREAS, Experience has shown that medical treatment can be further supplemented in reducing the prevalence of these diseases by more effective efforts to limit the number of new infections; and

WHEREAS, Experience has also shown that education and measures for the control of environment can be aided by the incorporation of measures for immediate disinfection of those exposed to these diseases, which measures have been proved to be scientific and practicable; be it

Resolved, That greater efforts now be made by official and voluntary agencies to devise and demonstrate community procedures to this end, and that a special committee be appointed to facilitate such efforts.

In England two organizations, the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease, have recently urged the minister of health to promote such changes in the English law as are necessary "to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority" (*Lancet*, Feb. 28, 1925). Thus is brought before the attention of all who seriously seek to combat syphilis and gonorrhea the question of making readily available approved methods of individual prophylaxis.

Medicolegal

Qualifications of Specialists—After-Treatment

(Fox v. Mason (Va.), 124 S. E. R. 405)

The Special Court of Appeals of Virginia says that the plaintiff in this action to recover for professional services was a specialist in ophthalmic surgery. March 7, he operated on the defendant for a lacrimal abscess. The patient remained at the hospital for two or three weeks and then stayed at a hotel until April 17, when he went home. During this time the plaintiff treated the wound, under which treatment satisfactory progress was made. But on April 30 the patient came back, and the plaintiff found that there was some recurrence of the lacrimal trouble and that inflammation had extended into the antrum. The plaintiff called into consultation a nose specialist, who opened the antrum and found it infected, and treated the patient four times. June 22, the plaintiff last saw the patient, then about well. After the operation of March 7 it was necessary to insert into the wound for drainage a small gold tube or cannula, which on one or more occasions it was necessary to remove. The defendant's evidence was that, just before he returned home, April 17, the plaintiff either caused or permitted this cannula to slip into the infected cavity; that the packing put in on April 17 caused the pus to dam up, so reinfected him that it practically put him back where he was in the beginning, and necessitated his return, April 30, for further treatment; and that he selected the specialist who operated last, under whose care a cure was effected. The plaintiff's evidence was that the insertion and removal of the cannula and the packing with antiseptic gauze had been properly done, and that the rise in temperature and other trouble afterward were not due thereto, nor to any unskilful treatment.

The plaintiff sued for $350, and was given a verdict for $175; but the trial judge set aside that verdict, and rendered a judgment for the defendant. The plaintiff appealed, and it is held that the verdict must stand, unless it was contrary to the evidence or without evidence to support it; neither of which things obtained here. The judgment of the trial judge, who saw and heard the witnesses, was entitled to due consideration on this appeal. But the evidence was clearly in conflict and presented issues solely for the jury. Therefore the judge erred in setting the verdict aside, and this court should render judgment for the plaintiff for the amount allowed him by the jury; and it is so ordered.

Physicians and surgeons are held to that degree of care and skill such as is exercised generally by physicians of ordinary care and skill in similar communities. The rule is the same as to specialists. There is no conflict of authorities, if we remember, that ordinary care and skill have reference to the character and condition of the service. Due care in a lumber camp might be gross negligence at Johns Hopkins. The surgeon is not an insurer. The doctrine of

res ipsa loquitur (the thing speaks for itself) has no application, and negligence must be proved.

What are the duties of a surgeon after an operation? A Philadelphia surgeon, sent for from Virginia to operate, could not be expected to remain and superintend the treatment; but a person who goes to Philadelphia to see a surgeon and specialist, who undertakes his case, has a right to look for reasonable care after the operation is performed. In the instant case the plaintiff continued to treat the defendant, and so the question as to whether or not it was his duty to do this is unimportant. He did undertake it, and in doing it he must have used that skill and care which could reasonably be expected in a specialist circumstanced as he was.

Loss of Foot, Not of Leg

(Black Diamond Collieries v. Carden (Tenn.), 265 S. W. R. 541)

The Supreme Court of Tennessee says that the workmen's compensation act of that state has separate provisions for compensation for the loss of a foot and for the loss of a leg. Plaintiff Carden had all the bones of the toes, instep and ankle of his left foot crushed. It was necessary to amputate the foot, but, instead of amputating it at the ankle, the surgeon amputated at the juncture of the lower and middle thirds, or 6 inches above the ankle joint and 8¼ inches from the floor level or bottom of the foot, although there was no injury above the ankle. The trial judge held that the plaintiff was entitled to recover as for the loss of a leg, but the supreme court holds that he could be considered to have lost only a foot. The portion of the leg which was amputated above the foot was of no possible service to him, after the foot was gone. On the contrary, it appeared that, with the foot absent, the portion of the leg amputated was a disadvantage. It cannot be reasonably contended that a man whose leg has been amputated just above the ankle has lost that leg. He has left all of the leg that is of any use to him except the foot. The knee joint remains and a sufficient stump below the knee to which may be attached an artificial foot. With an artificial foot, such a man acquires a use of the repaired leg that nearly approaches the use of a sound leg. While such a loss as the employee here sustained is serious indeed, it is not equivalent to the loss of his leg. For practical purposes it amounts only to the loss of his foot.

Roentgenologic and Physical Findings Comparable

(Casey v. Atlantic City & S. R. Co. (N. J.), 126 Atl. R. 293)

The Court of Errors and Appeals of New Jersey says that, in this action to recover damages for personal injuries, a witness who had qualified as a physician as well as a roentgen-ray specialist, and who had testified to an external examination of the plaintiff's injury and to having made a roentgenogram of the injured parts, was asked: "Would you then say the condition of her wrist, as you observed it, was such as you would have expected from the condition that you x-rayed?" There was no error in permitting this question to be answered. The witness was being asked to compare the conditions as he found them from both examinations.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., May 25-29. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of Allergy, Atlantic City, May 26. Dr. W. W. Duke, Federal Reserve Bank Bldg., Kansas City, Mo., Sec'y.

American Association for the Study of Goiter, Atlantic City, May 26. Dr. J. D. Moschelle, Odd Fellows Bldg., Indianapolis, Ind., Secretary.

American Association of Genito-Urinary Surgeons, Washington, D. C., May 4-6. Dr. Henry G. Bugbee, 40 East 41st St., New York, Sec'y.

American Climatological and Clinical Association, Washington, D. C., May 4-5. Dr. Arthur K. Stone, Framingham Center, Mass., Secretary.

American Dermatological Association, Washington, D. C., May 4-6. Dr Udo J. Wile, 9 Geddes Heights, Ann Arbor, Mich., Secretary.

American Gastro-Enterological Association, Atlantic City, May 25-26. Dr. John Bryant, 338 Marlborough Street, Boston, Secretary.

American Gynecological Society, Washington, D. C., May 4-6. Dr. Arthur H. Curtis, 104 South Michigan Avenue, Chicago, Secretary.

American Laryngological Association, Washington, D. C., May 4-6. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, May 22-25. Dr. R. L. Loughran, 145 West 58th Street, New York, Secretary.

American Neurological Association, Washington, D. C., May 5-6. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.

American Ophthalmological Society, Washington, D. C., May 5-6. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.

American Orthopedic Association, Washington, D. C., May 5-6. Dr. DeForest P. Willard, 1630 Spruce Street, Philadelphia, Secretary.

American Otological Society, Washington, D. C., May 4-5. Dr. T. J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, Washington, D. C., May 4-6. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Proctologic Society, Atlantic City, May 25-26. Dr. J. F. Montague, 540 Park Avenue, New York, Secretary.

American Psychiatric Association, Richmond, Va., May 12-15. Dr. E. D. Bond, 4401 Market Street, Philadelphia, Secretary.

American Psychopathological Association, Washington, D. C., May 7. Dr. Sanger Brown, 2d, 173 East 70th Street, New York, Secretary.

American Society of Clinical Investigation, Washington, D. C., May 4. Dr. J. H. Austin, University of Pennsylvania, Philadelphia, Secretary.

American Society of Clinical Pathologists, Philadelphia, May 20-23. Dr. Ward Burdick, Metropolitan Building, Denver, Secretary.

American Society of Tropical Medicine, Washington, D. C., May 5-6. Dr. B. H. Ransom, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

American Surgical Association, Washington, D. C., May 4-6. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

American Therapeutic Society, Atlantic City, N. J., May 21-22. Dr. L. H. Taylor, The Cecil, Washington, D. C., Secretary.

American Urological Association, St. Louis, May 21-23. Dr. H. G. Hamer, Hume-Mansur Building, Indianapolis, Secretary.

Arkansas Medical Society, Little Rock, May 13-15. Dr. William R. Bathurst, 810 Boyle Building, Little Rock, Secretary.

Association for the Study of Internal Secretions, Atlantic City, May 26. Dr. F. M. Pottenger, Title Insurance Bldg., Los Angeles, Secretary.

Association of American Physicians, Washington, D. C., May 5-7. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.

California Medical Association, Yosemite National Park, May 18-21. Dr. Emma W. Pope, Balboa Building, San Francisco, Secretary.

Conference of State and Provincial Health Authorities, Montreal, Canada, June 4-5. Dr. Richard M. Olin, State Commissioner of Health, Lansing, Mich., Secretary.

Congress of Physicians and Surgeons of North America, Washington, D. C., May 5-6. Dr. W. R. Steiner, 646 Asylum Avenue, Hartford, Conn., Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

Georgia, Medical Association of, Atlanta, May 13-15. Dr. A. H. Bunce, 65 Forrest Avenue, Atlanta, Secretary.

Illinois State Medical Society, Quincy, May 19-21. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 13-15. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 5-7. Dr. J. F. Hassig, 804 Elks Building, Kansas City, Secretary.

Maine Medical Association, Bar Harbor, June 23-25. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.

Massachusetts Medical Society, Boston, June 9-10. Dr. W. L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, Atlantic City, May 25-26. Miss H. Wilson, 535 N. Dearborn Street, Chicago, Secretary.

Medical Women's National Association, Atlantic City, May 25-26. Dr. B. M. Haines, Michigan Department of Health, Lansing, Secretary.

Mississippi State Medical Association, Biloxi, May 12-14. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, May 5-7. Dr. E. J. Goodwin, 901 Missouri Theatre Building, St. Louis, Secretary.

National Association for the Study of Epilepsy, Richmond, Va., May 11-12. Dr. A. L. Shaw, 44 Church Street, Camden, N. Y., Secretary.

Nebraska State Medical Association, Lincoln, May 12-14. Dr. R. B. Adams, 1012 Terminal Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 18-20. Dr. J. B. Morrison, 97 Halsey Street, Newark, Secretary.

New York, Medical Society of the State of, Syracuse, May 12-14. Dr. E. L. Hunt, 17 West 43d Street, New York, Secretary.

North Dakota State Medical Asociation, Fargo, May 18-19. Dr. Alex. J. McCannel, Minot, Secretary.

Ohio State Medical Association, Columbus, May 5-7. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 12-14. Dr. C. A. Thompson, 308 Barnes Building, Muskogee, Secretary.

Radiological Society of North America, Atlantic City, N. J., May 22-23. Dr. Robert J. May, 5005 Euclid Avenue, Cleveland, Secretary.

Rhode Island Medical Society, Providence, June 4. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

Southern Minnesota Medical Association, Owatonna, May 18. Dr. H. T. McGuigan, Red Wing, Secretary.

Texas, State Medical Association of, Austin, May 5-7. Dr. Holman Taylor, 207½ West 11th Street, Fort Worth, Secretary.

West Virginia State Medical Association, Bluefield, June 9-11. Mr. Sterrit O. Neale, 211 Smallridge Bldg., Charleston, Executive Sec'y.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

71: 479-748 (Feb.) 1925

Histamine As Constituent of Secretin Preparations. E. Parsons, Chicago.—p. 479.
*Insulin and Body Temperature. M. B. Visscher and R. G. Green, Minneapolis.—p. 502.
Effect of Epinephrin on Temperature of Brain. M. W. Caskey and W. P. Spencer, Columbus, Ohio.—p. 507.
III. Pulse Wave Velocity in Pathologic Conditions. J. Sands, Edinburgh.—p. 519.
IV. Effect of Epinephrin on Pulse Wave Velocity. D. M. Lyon and J. Sands, Edinburgh.—p. 534.
Relation of Calcium Restriction to Hatchability of Eggs. G. D. Buckner, J. H. Martin and A. M. Peter, Lexington, Ky.—p. 543.
Attempts to Produce Experimental Increase in Rate of Output of Thyroglobulin by Thyroid. A. J. Carlson, L. Hektoen and K. Schulhof, Chicago.—p. 548.
Purification of Heparin and Its Presence in Blood. W. H. Howell, Baltimore.—p. 553.
Effect of Chloral Hydrate on Heart and Cross Striated Muscles. S. d'Irsay and W. S. Priest, Chicago.—p. 563.
Antagonistic Action of Certain Sugars, Amino-Acids and Alcohols on Insulin Intoxication. C. Voegtlin, E. R. Dunn and J. W. Thompson, Washington, D. C.—p. 574.
Physiology of Gastric Secretion. IV. Stimulation of Gastric Secretion by Hydrolyzed Proteins. A. C. Ivy and A. J. Javois, Chicago.—p. 583.
Id. V. Stimulation of Gastric Secretion by Amino-Acids. A. C. Ivy and A. J. Javois, Chicago.—p. 591.
VI. Stimulation of Gastric Secretion by Amines and Other Substances. A. C. Ivy and A. J. Javois, Chicago.—p. 604.
*Cause of Many Febrile Reactions Following Intravenous Injections. F. B. Seibert, Chicago.—p. 621.
Id. II. Bacteriology of Twelve Distilled Waters. J. M. Bourn and F. B. Seibert, Chicago.—p. 652.
*Metabolism in Pregnancy. I. Changes in Tension of Alveolar Carbon Dioxid. A. W. Rowe, H. L. Banks and M. D. Alcott, Boston.—p. 660.
Id. II. Changes in Basal Metabolism Rate. A. W. Rowe, M. D. Alcott and E. Mortimer, Boston.—p. 667.
Glomerular Versus Tubular Activity in Mesonephros of Necturus: Elimination of Iron Salts. A. B. Dawson, Chicago.—p. 679.
Sugar Concentration in Arterial and Venous Blood During Insulin Action. C. F. Cori and G. T. Cori, Buffalo.—p. 688.
Insulin Content of Pancreas and Other Tissues in Animals Poisoned with Phlorhizin. G. T. Cori, Buffalo.—p. 708.
Respiratory Changes During and After Period of Anoxemia. E. C. Schneider, D. Truesdell and R. W. Clark, Mitchel Field, N. Y.—p. 714.
Age and Sex Differences in Daily Food Intake of Rat. G. H. Wang, Baltimore.—p. 729.
Changes in Amount of Daily Food Intake of Rat During Pregnancy and Lactation. G. H. Wang, Baltimore.—p. 736.

Insulin and Body Temperature.—Visscher and Green noted that the rectal temperature of rabbits varies in the majority of instances after insulin injection. It has not been possible to observe any relation between the blood sugar, or the hypoglycemic reaction, and the temperature. The hypoglycemia may be accompanied by a fall, a rise, or by no change in rectal temperature.

Cause of Febrile Reactions Occurring After Intravenous Injections.—About 50 per cent. of the distilled waters examined by Seibert used by laboratories produced fever when injected intravenously into rabbits. The fever-producing material is a product formed by specific bacteria which contaminate the water, and can be removed from the water by distillation. It cannot be estimated by a bacterial count of the pyrogenic water. Correlation between a bacteriologic study of the flora of twelve distilled waters and a study of the physiologic reactions produced in rabbits by the injection of aqueous extracts of the different strains of bacteria revealed the fact that the bacteria responsible for the production of pyrogen fall within a limited area of the group of nonchromogenic bacteria described. They are, furthermore, characterized by the production of acid in milk. These bacteria are further subdivided into four groups according to the reactions produced by their extracts. As to the chemical nature of the pyrogen, it is destroyed very slowly by heat alone, but readily by heat in the presence of acid or alkali. It can be concentrated under diminished temperature and pressure, the amount of concentration being tested by the degree of rise in temperature in rabbits. Chill and fever were produced in man by the intravenous injection of from 80 to 100 c.c. of saline solution made from pyrogenic water, whereas no reaction followed the injection of saline solution made from freshly distilled water.

Metabolism in Pregnancy.—Data on the tension of alveolar carbon dioxid, and the elimination of acid and of phosphates of the normal pregnant woman have been secured by Rowe, Banks and Alcott by the observation of several series of cases. The carbon dioxid observations indicate a mild degree of acidosis, which apparently operates throughout the period of gestation. The values for acid and phosphate elimination, while not high, are substantially normal by generally accepted conventional standards. Acid retention is apparently not the cause of the existing acidosis.

American Journal of Roentgenology and Radium Therapy, New York

13: 105-202 (Feb.) 1925

Nomenclature Used by Registry of Bone Sarcoma. E. A. Codman, Boston.—p. 105.
Differential Diagnosis of Certain Chronic Lung Lesions. F. S. Bissell, Minneapolis.—p. 126.
Influence of High Voltage Roentgen-Ray Irradiation on Salivary Secretion in Dogs and Its Effect on Sensibility of Buccal Mucosa. J. T. Case and W. N. Boldyreff, Battle Creek, Mich.—p. 130.
*Effects of Repeated Roentgen-Ray Exposures on Human Skin, Antecedent to Formation of Carcinoma. S. B. Wolbach, Boston.—p. 139.
*End Results in Roentgen-Ray Treatment of Cutaneous Cancer. H. H. Hazen and E. R. Whitmore, Washington, D. C.—p. 144.
Final Results in Treatment of Carcinoma of Uterine Cervix at "Radiumhemmet," Stockholm. J. Heyman, Stockholm, Sweden.—p. 158.
Value of Radium and Roentgen-Ray Radiation in Treatment of Benign Uterine Hemorrhage. H. E. Bundy, Chicago.—p. 162.

Effect on Skin of Repeated Exposure to Roentgen Ray.—In the consideration of the origin of epidermoid carcinoma in chronic roentgen-ray dermatitis, the outstanding fact of importance, in Wolbach's opinion, is that the conditions are continually occurring which call forth proliferative activities on the part of the epidermis greatly in excess of the rate of normal proliferation or that which can be induced by conditions not involving the corium. Wolbach stresses the observation that the acquisition of malignant properties is not a sudden one, but is gradually acquired in the course of years. He believes that the epidermis is a transparent tissue and is not injured by the passage of the rays. Reactions of the epidermis are secondary to lesions in its supporting tissue, the corium. For many years following injuries by roentgen rays, the epidermis proliferates and behaves as it does in normal reparative processes. The acquisition of malignant properties follows sustained proliferative activities in contact with an abnormal supporting tissue.

Results of Roentgenotherapy of Skin Cancer.—Of unselected patients, 84 per cent. were cured by Hazen and Whitmore of basal cell cancer. Of selected patients, 93 per cent. were cured. Of unselected growths, 88 per cent. were cured. Of selected growths, 96 per cent. were cured. The results in women are a little better than in men. The age of the patient does not affect the result. Deep ulcers or nodules do not give as good results as other types of lesions. Growths on the ears and growths in the cartilage yield poor results. Early lesions give better results than do old. Small lesions give better results than do large. Cases previously treated with roentgen rays or radium yield about 50 per cent. of cures. Roentgen-ray results are the same as those secured from radium or from excision. Cosmetic results are excellent. The causes of failure are: deep invasion of cartilage; poor cooperation; localization in scar tissue, and previous irradiation. Of the prickle cell cancers, 45 per cent. were cured. Of cancerous glands, 41 per cent. were cured.

Annals of Surgery, Philadelphia

81: 413-572 (Feb.) 1925

*Neuro-Epithelioma of Spinal Cord. J. A. Hartwell and L. D. Stevenson, New York.—p. 413.
Primary Sarcoma of Spine. S. Kleinberg, New York.—p. 433.

*Early Treatment of Superficial Burns. I. S. Ravdin and L. K. Ferguson, Philadelphia.—p. 439.
*Ligation of Abdominal Aorta. R. Matas, New Orleans.—p. 457.
Congenital Arteriovenous Fistula of Left Brachial Artery and Vein with Secondary Arterial Blood Supply to Arm. B. M. Bernheim, Baltimore.—p. 463.
So-Called Idiopathic Dilatation of Esophagus: Five Cases. P. N. Bull, Oslo, Norway.—p. 470.
*Relief of Pain from Carcinoma of Mouth and Cheek. F. C. Grant, Philadelphia.—p. 494.
Kidney Gummata: Case. T. Aoyama, Tokyo, Japan.—p. 499.
Perirenal Hydronephrosis. B. Lipshutz, Philadelphia.—p. 502.
Situs Inversus Abdominalis Complicated by Ileocecal Tuberculosis Producing Acute Intestinal Obstruction. G. A. Moore, Brockton, Mass.—p. 511.
Relation of Appendix to Right Kidney and Ureter. H. A. R. Kreutzmann, San Francisco.—p. 518.
Intra-Appendical Polyp. H. J. Vanden Berg and W. McK. German, Grand Rapids, Mich.—p. 522.
*Hernia Following McBurney Incision in Operations for Appendicitis. F. E. Fowler, New York.—p. 525.
Removal of Screws and Plates After Insertion in Bone. A. P. C. Ashhurst, Philadelphia.—p. 528.
Radiographic Study of Injuries About Wrist-Joint. R. W. Carter, Green Bay, Wis.—p. 532.
Frontal Fractures of Patella. S. F. Stewart, Los Angeles.—p. 536.

Neuro-Epithelioma of Spinal Cord.—The tumor reported on by Hartwell and Stevenson was entirely extramedullary. So far as can be determined, it took its origin from beneath the pia-arachnoid, the latter membrane passing over it and binding it closely to the cord. It differed from most extramedullary spinal tumors in that it possessed excessive malignancy.

Early Treatment of Superficial Burns.—Ravdin and Ferguson outline the treatment employed by them in fifteen cases. Excision of devitalized tissue was practiced in every case. In the extensive burns, anesthesia was employed in carrying out this procedure. As soon as healthy granulations appeared in the extensively debrided cases, skin grafting was practiced. Better results were obtained from the use of Thiersch or whole thickness skin grafts than from the pinch grafts. In the less extensive burns, packs of physiologic sodium chlorid solution were used.

Ligation of Abdominal Aorta.—Matas reports the ultimate result, one year, five months and nine days after ligation of the abdominal aorta for aneurysm at the bifurcation. Death was caused by a fulminating pulmonary hemorrhage from a tuberculous cavity that developed in the course of an acute generalized tuberculosis. The aortic aneurysm was almost completely obliterated by dense clot. The process of cure had been practically effected at the time of the fatal pulmonary hemorrhage.

Alcohol Injection to Relieve Pain from Mouth Cancer.—Grant's report is based on a series of twenty-seven cases. In every case except two, the malignancy involved the skin or mucous membrane about the mouth and cheeks. In two cases, the maxillary antrum and posterior ethmoid cells were the seat of the growth. Injection was done in twenty cases; operation, in seven. Of the twenty patients receiving deep alcoholic injections, ten were completely relieved of the pain, seven were improved, and three were not benefited. Among the ten patients completely relieved, five died painlessly from metastasis within eighteen months following injection. Three are pain-free and receiving treatment. Two are apparently cured twenty-four and thirty months after injection. In one case, in which the relief of pain was complete, an extensive fulguration of a growth of the jaw and tongue was carried through without any anesthesia. There has been no recurrence after removal. In seven cases the major operation was performed, twice with intracranial neurectomy of the second and third divisions, five times with avulsion of the sensory root of the trigeminus behind the gasserian ganglion. Two patients are still alive and free from pain. One was pain-free for eighteen months, when he succumbed to metastasis. One was pain-free for eight months, and then developed pain in the neck and ear, which continued for two months until death. The fifth patient developed a meningitis, due apparently to an intracranial extension of a carcinoma of the antrum, five days after operation, and died. His suffering was completely relieved during the ten days he survived. The sixth case, again with an intracranial extension of a carcinoma of the ethmoid cells, which involved the gasserian ganglion, showed only partial relief. The last patient had marked involvement of the floor of the mouth and tonsil, as well as the tongue, inferior maxillary bone and cheek. While the pain in the jaw and tongue ceased, that in the throat and ear remained. The first week after operation, he seemed improved. Subsequently he complained more bitterly of the pain in his throat and ear than he had about the pain in his mouth. His condition was in no way bettered.

Hernia Following McBurney Incision.—The cases included in Fowler's report, 182 in all, were all drained cases and are of two types: those in which the wound was sutured above and below the drains, and those in which no sutures at all were used. The latter type of procedure has been the routine procedure for the last two years. All the 182 patients have been followed for at least nine months and have been examined at regular intervals of three months or so since operation, either by the operator himself or a member of the staff. The McBurney intramuscular incision was used in all the cases. Drainage is established with two cigaret drains, one of which is removed in from twelve to twenty-four hours, the other in from thirty-six to seventy-two hours. One drain is inserted deep down to the appendix base or into the pelvis, depending on the suppurative process, and the other just within the peritoneum. This latter is the first one removed, the idea being to establish thus a drainage tract, not expecting to drain longer than forty-eight hours through the cigaret drains. Later the deep drain is removed and a small rubber tube is inserted for a few days. Excellent drainage is established by this method, and is maintained from the suppurative site the desired time. The hernia incidence in this series of cases was 14 per cent. In eighty-seven cases in which the layers were sutured above and below the drains, there were fourteen hernias, or 16 per cent. In the non-suture cases the incidence was 12 per cent.

Southern Medical Journal, Birmingham

8: 19-34 (Feb.) 1925

Iodin and Goiter. S. McGuire, Richmond, Va.—p. 87.
Early Diagnosis of Malignant Disease of Kidney. H. L. Kretschmer, Chicago.—p. 92.
Malignant Disease of Kidney. H. Cabot, Ann Arbor, Mich.—p. 99.
Malignant Diseases of Kidney from Roentgen-Ray Standpoint. P. M. Hickey, Ann Arbor, Mich.—p. 103.
Prenatal Care in Obstetrics in South. E. Speidel, Louisville.—p. 107.
New Cervical Electrode. C. L. Peacock, New Orleans.—p. 112.
Method for Reduction of Separated Lower Epiphysis of Femur. S. T. Weir, Beaumont, Texas, and J. H. Nicholson, Chester, Penn.—p. 112.
Roentgen Ray Work in South. W. R. Bethea, Memphis.—p. 114.
Family Physician Versus Laboratory Diagnosis of Malaria. W. T. Wootton, Hot Springs, Ark.—p. 116.
Invasion of Hair of Scalp by Aspergillus. K. M. Lynch, Dallas, Texas.—p. 119.
*Seasonal Recurrence of Intestinal Infections. A. I. Kendall, St. Louis.—p. 120.
*Studies in Pollen Sensitization: II. J. H. Black, Dallas, Texas.—p. 122.
Our Responsibility to Our Deaths. H. E. Robertson, Rochester, Minn.—p. 125.
Epiglottic Cysts in Infancy. J. H. Park, Jr., and S. Israel, Houston, Texas.—p. 128.
Nutritional Disturbance; Xerophthalmia: Case. J. M. Bell, Mobile, Ala.—p. 131.
Congenital Amyotonia, Oppenheim's Disease; Case. R. J. Estill, Lexington, Ky.—p. 133.
Shall America Remain White? W. A. Plecker, Richmond, Va.—p. 134.
Influence of Atmosphere in Causation of Colds. W. A. Wells, Washington, D. C.—p. 139.
Bacteriologic Factor in Cause of Common Colds. E. A. Looper, Baltimore.—p. 143.

Seasonal Recurrence of Intestinal Infections.—Kendall speaks of an unexpected and apparently hitherto unrecognized relationship, discernible by him in some of his early work, between the kind of microbe which was encountered in rather severe diarrheal cases occurring in the late summer and early fall, at the time the acute summer epidemic was waning, and the prominence of this same type of organism the following summer in the more severe, so-called infectious diarrheas. For instance, 1910 was a bacillary dysentery year; 1911 was clinically and bacteriologically a streptococcus season. The complications and sequelae, perforation, peritonitis, nephritis and middle ear involvement were unlike those seen in the dysentery cases in succeeding seasons. The summer of 1912 was unlike the previous summers, clinically

and bacteriologically, in that the Welch bacillus group of organisms was the outstanding infectant, isolated most frequently and from the most severe cases. The dietetics of this group were unlike those of the preceding years. The year 1913 was characterized bacterially by the prominence of numbers of the *Bacillus mucosus-capsulatus* group of organisms, bacteria which had been encountered in but few cases during the earlier summer epidemics. Also, and this may be of significance, this same organism was isolated by separate observers from the milk of two independent certified milk supplies. Culturally, the bacteria obtained from the milk were identical with those isolated from the patients. More surprising, although much less noticeable than the seasonal alternation of bacterial types, as apparent incitants of severe diarrhea, is the appearance of new kinds of bacteria in the diarrhea of late summer, after August 21, when the acute summer epidemic is waning. With the exception of 1910, when the observation was not made there is a definite foreshadowing in these "fall diarrheas" of the dominating microbe of the following summer. Thus in 1911, fourteen cases of rather severe gas bacillus diarrhea appeared late in August and early in September, although eight scattered cases only had been encountered among the severe cases of the summer. In 1912, twenty-two fall cases appeared in which members of the *Bacillus mucosus-capsulatus* group were the probably inciting agents, although nine cases only had appeared in the interval between June 15 and August 21, a period of maximal intestinal admissions to the hospital. The year 1913 was also noteworthy for the reappearance of the dysentery bacillus in significant numbers. Seventeen fall cases were encountered in fifteen days. Only seven cases had appeared during the previous nine weeks. The "anticipation" in the fall of the next year's prominent intestinal infectant was so suggestive, that a very guarded prediction was made, on the basis of these several observations, that the summer of 1914 would be one in which bacillary dysentery would be the prominent type of infectious diarrhea. The chief point of this discussion lies not so much in the actual facts presented as in the possibilities which it would seem to open in the field of preventive medicine. The outstanding, and immediate feature, if subsequent investigation reveals that the phenomenon discussed is of reasonably constant occurrence, lies in the element of predictability of an impending outbreak of specific disease. The first few cases in an epidemic are usually the most important, because they are frequently not diagnosed promptly and therefore are the foci for a rapidly widening circle of cases. The best method of stopping epidemics, local or general, is to forestall them. The interval between late fall and early summer can be profitably spent in a campaign of education and preparation to meet the full force of the epidemic storm, if indeed its path cannot be evaded.

Pollen Sensitization.—Experiments made by Black indicate the necessity for laboratory investigation of pollen sensitization and illustrate some of the clinical problems that may be approached from an experimental point of view.

Texas State Journal of Medicine, Fort Worth

20: 527-578 (Feb.) 1925

Prostate in Health and Disease. A. A. Brown, San Antonio.—p. 537.
Ischochymia. S. T. Lowry, San Antonio.—p. 540.
Bacteriophage in Infectious Diseases. H. M. Winans, Dallas.—p. 542.
Paranasal Sinus Cases. E. H. Cary, Dallas.—p. 544.
Intralaryngeal Growths; Cases. D. T. Atkinson, San Antonio.—p. 547.
*Treatment of Arsphenamin Dermatitis with Sodium Thiosulphate. J. C. Michael, Houston.—p. 551.
Texas Food, Drug and Antinarcotic Laws. W. W. Battle, Austin.—p. 553.
Ablatio Placentae: Cases. H. R. Robinson, Galveston.—p. 556.
Value of Roentgen Ray in Obstetrics. J. W. Bourland and D. Spangler, Dallas.—p. 560.
Corn Whisky and Its Constituents. H. M. Stevenson, Fort Worth.—p. 562.

Sodium Thiosulphate for Arsphenamin Dermatitis.—Michael has found sodium thiosulphate to be a most valuable drug in the treatment of arsenical eruptions. He reports five cases. In one case a susceptibility to neo-arsphenamin was proved, and it was demonstrated that the administration of sodium thiosulphate in conjunction with neo-arsphenamin prevented a cutaneous outbreak, though it did not prevent vomiting and other severe gastro-intestinal symptoms. It is also worthy of note that the last dose of neo-arsphenamin was given without recourse to the buffer action of sodium thiosulphate, and was not followed by a dermal disturbance.

U. S. Naval Medical Bulletin, Washington, D. C.

22: 119-255 (Feb.) 1925

*Real Cause of Elephantiasis. H. M. Stenhouse.—p. 119.
Traumatic Neuroses. F. R. Sheehan.—p. 127.
Paretic Neurosyphilis. F. M. Harrison.—p. 131.
Iodin Prophylaxis of Goiter. W. W. Hall.—p. 148.
*Hypernephroma. F. S. Johnson.—p. 156.
Malignant New Growths. L. H. Williams.—p. 160.
Seven Nephrectomies. G. F. Cottle.—p. 165.
Acromegaly: Case. M. E. Wonders.—p. 175.
Neurosyphilis: Two Cases. H. E. List.—p. 181.
Multiple Extragenital Chancre. J. C. Parham.—p. 186.
Plastic Repair of "Saddle Nose" Deformity by Autogenous Cartilaginous Graft. C. B. Camerer.—p. 186.

Cause of Elephantiasis.—Stenhouse reviews the process by which elephantiasis occurs. The chronic inflammation set up by the adult filaria parasite is a localized defense reaction, but the chemical change in the circulating lymph is more generalized. Prominent among the chemical constituents of the chylous lymph is cholesterol. Deposits of cholesterol are found in fresh lymph; hence there is a superabundance of that fatlike substance in the lymph. Because of the low solubility of cholesterol crystals, precipitates are not readily absorbed; by a process of accretion the deposits are built up; the intercellular spaces become less permeable; the natural flow of lymph is impeded. Accompanying the cholesterol deposits, other unidentified crystalline deposits are found. Although not demonstrated, lecithin probably shares with cholesterol the rôle of obstructive agent. Lecithin, because of its tendency to swell when it absorbs water, would aggravate the hyperplastic tendency. The precipitate of cholesterol in the affected area, the bony irregularities which appear early in the disease, and the latter extreme fibrosis of soft tissues resemble in a way the pathology of cholecystitis and cholelithiasis when cholesterol stones form in the gallbladder. Precipitation of cholesterol crystals in the interstitial spaces explains fully the blockage which ends in elephantiasis. The superabundance of cholesterol is a result of the generalized defense effort against the adult and embryonic filaria. It is augmented by the nephritis and endocrine anomalies.

Hypernephroma with Spinal Cord Metastases.—A case with sudden onset of paralysis as the result of an extradural metastasis to the spinal cord from a papillary adenocarcinoma of the kidney with clear cells is reported by Johnson. The case is important because it shows that a sudden paralysis, which usually means a myelitis or vascular lesion, may be due to tumor formation.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

37: 113-162 (March) 1925

Mycosis Fungoides. W. K. Wills and G. Hadfield.—p. 113.
Lymphadenomâ with Cutaneous Manifestations: Case. J. M. H. Macleod.—p. 119.
Symmetrical Lividities of Soles of Feet. G. Pernet.—p. 123.
Eighty-Six Cases of Dermatitis Due to Dyed Fur. A. C. Roxburgh.—p. 126.

British Journal of Radiology, London

30: 81-120 (March) 1925

Measuring and Expressing Roentgen-Ray Quality in Radiography. B. E. Luboshez.—p. 81.
Roentgen-Ray Protection. P. K. Bowes.—p. 90.
Opaque Intracranial Tumor Treated by Subtemporal Decomposition. H. C. Edwards.—p. 102.
Chair for Radiotherapeutic Treatment of Perineum in Seated Position. C. Heuser.—p. 109.

British Medical Journal, London

1: 541-586 (March 21) 1925

Tumors of Cerebrum. H. S. Souttar.—p. 541.
Massive Pulmonary Collapse. A. B. Soltau.—p. 544.
*Possibility of Restoring Movement to Paralyzed Vocal Cord by Nerve Anastomosis. L. Colledge.—p. 547.

Spinal Anesthesia by Stovaine. R. B. Celeman.—p. 548.
*Rheumatic Infection in Childhood. V. Coates.—p. 550.
*Induced Leukocytosis in Treatment of Infections. W. A. Elliott.—p. 551.
Ophthalmology in Egypt. A. F. MacCallan.—p. 551.
Diphtheria at Age of Seventy-Two. J. C. Muir.—p. 552.
Gallstones in Male Aged Eighteen: Cholecystectomy: Recovery. R. S. Woods.—p. 552.
*Anterior Poliomyelitis, Herpes Zoster and Varicella in Sequence. H. S. Morley.—p. 552.
Gumma of Cecum Mistaken for Chronic Appendicitis. F. H. Alexander.—p. 552.
Brain Abscess Simulating Paralytic Dementia. S. Grossman.—p. 553.
*Intrapericardial Rupture of Aortic Aneurysm in Infant. B. Gluck.—p. 553.

Nerve Anastomosis for Paralyzed Vocal Cord.—Experiments were made by Colledge on the effects of an anastomosis of the recurrent laryngeal with another nerve. The results of the experiments may be divided into three groups: (1) Anastomosis with the vagus: Although a nervous connection may be reestablished by a recurrent laryngeal vagus anastomosis, it is useless to expect return of spontaneous movement in the corresponding vocal cord. (2) Anastomosis with the descendens noni: The results of these experiments show that the muscles controlling the movements of the vocal cord become innervated, but no movement occurs in the cord because the appropriate impulse does not pass along this route. (3) Anastomosis with the phrenic: Spontaneous respiratory movements can be restored to the vocal cord by an anastomosis between the recurrent laryngeal and the phrenic. The entire trunk of the phrenic is not necessary, and probably it will be found sufficient to use half the trunk, as in a lateral anastomosis, or one of the roots arising from the cervical nerves. It is suggested that in the human the appropriate operation would be an end-to-side anastomosis between the recurrent laryngeal and the phrenic.

Rheumatic Infection in Childhood.—It has been stated that subcutaneous rheumatic nodules usually make their appearance only in grave affections associated with gross cardiac disease. It did not seem improbable to Coates, however, that nodules less obvious than those of graver infection might be discovered in subacute cases. When this suggestion had been established, in part, by the examination of children known to be suffering from rheumatic infection, 100 children between the ages of 2 and 12 years were examined very carefully for subcutaneous nodules, irrespective of the complaints for which they were brought to the hospital. In searching for the nodules particular attention was paid to the spinous processes of the vertebrae and to the olecranon processes. The nodules appeared to vary in size from that of a small sago grain to that of a pinhead and were often in small clusters. Synovitic creaking was often obvious round the vertebral spines and is most characteristic. Of the 100 children, twenty-three gave a history suggesting rheumatic infection, and in these no other causes of a toxic state could be elicited, except *Ascaris lumbricoides* in two instances, efficient treatment of which did not alleviate symptoms present.

Induced Leukocytosis in Treatment of Infections.—The method employed by Elliott consists in the intramuscular injection of a mixture of mercuric salicylate in liquid petrolatum (1 grain [0.065 gm.] per cubic centimeter), 1 c.c. being injected at intervals of one week up to four or six doses, or fewer if the desired result is obtained earlier. In three cases reported, (1) chronic infection of the lungs following pneumonia with bronchiectasis, (2) carbuncle and (3) chronic dermatitis, the results were very good. The conclusions drawn are that the "specific" action of mercury, arsenic and quinin in certain diseases is all due to a general leukocytosis.

Anterior Poliomyelitis, Herpes Zoster and Varicella.—Morley is of the opinion that the sequence of events in his case—anterior poliomyelitis, herpes zoster, and finally varicella—suggests the possibility of some connection between the three conditions.

Intrapericardial Rupture of Aortic Aneurysm in Infant.—Gluck reports the case of a child, aged 20 months, that died suddenly, while eating. A necropsy was done. Commencing three-quarters inch above the aortic ring, the anterior and right walls of the aorta were deficient for seven-eighths inch, the aorta opening into a saccular aneurysm which extended along the upper end of the ascending aorta, covering its anterior and right aspects. The aneurysm was 1 inch in diameter. Practically the whole aneurysm was inside the pericardial sac. No definite opening could be found, but over an area one-fourth inch in diameter on the anterior surface, the wall of the aneurysm thinned down to the thickness of note paper, and through this the blood apparently leaked.

China Medical Journal, Shanghai

39: 85-184 (Feb.) 1925

Distinguishing Characteristics of Intestinal Protozoa of Man. J. F. Kessel.—p. 39.
Mercurochrome-220 Soluble and Gentian Violet in Treatment of Various Infections. J. M. Rogers.—p. 123.
Auricular Fibrillation. M. Burn.—p. 128.
Composition of Hens' Eggs in Relation to Size. E. Tso.—p. 136.
Flocculation Test for Syphilis in Small Clinics. P. V. Early.—p. 140.
Tumors of Eyelids. W. J. Evans.—p. 145.

Glasgow Medical Journal

103: 145-199 (March) 1925

Tetany: Historical Note. L. Findlay.—p. 145.
Tetany: Blood Chemistry. S. Graham.—p. 152.
Treatment of Infantile Tetany. G. H. Anderson.—p. 159.
*Causation and Origin of Hernia. A. MacLennan.—p. 164.

Origin of Hernia.—MacLennan defends the sac theory of hernia. He believes that the frequent association of hernial sacs and embryonic rests indicates for them a common origin.

Indian Medical Gazette, Calcutta

110: 53-92 (Feb.) 1925

*Typhus-Like Fever, Probably Tick-Typhus, in Central India. J. W. D. Megaw, F. B. Shettle and D. N. Roy.—p. 53.
*Indian Tick-Typhus. J. W. D. Megaw.—p. 58.
*Carbon Tetrachlorid As An Anthelmintic. A. C. Chandler and A. K. Murkerji.—p. 61.
Gaucher's Type of Splenomegaly in Mahratta Village; Case Treated by Splenectomy. W. C. Spackman and F. P. Mackie.—p. 69.
Pathology of Disease. F. P. Mackie.—p. 71.
Case of Contracture of Mouth. N. S. Narasimhan.—p. 72.

Typhus-Like Fever in India.—The cases described by Megaw, Shettle and Roy are of interest as furnishing fresh evidence of the occurrence in India of a typhus-like fever which is identical with or closely related to Rocky Mountain spotted fever. The main symptoms consist of acute muscular pains and joint pains, headache, pain behind the eyes, furred tongue, sometimes congestion of the conjunctiva and throat, vomiting once or twice at the commencement, bleeding from the nose and occasionally a little diarrhea at the onset. The pains are very like those of dengue and vary considerably with the severity of the case. The spleen is a little enlarged in most of the cases. All the symptoms gradually disappear with the fading of the rash, which generally stays out after the temperature has become normal. The rash appears on any day up to the fifth or sixth; is rubeolar in character, and commences on the trunk and extensor surfaces of the limb, particularly on the backs of the hands and soles of the feet and palms of the hands. In mild cases it is very discrete and in severe cases the reverse; it spreads to the face, and, in the end, covers the body. It lasts in some cases up to twenty days, and, in the end, fades with a very slight desquamation, which is not general. If seen after some time, it rather looks purpuric. The fever varies in duration, but generally lasts from twelve to seventeen days. It commences about 102 or 103 F. and then falls. There are daily remissions, some cases coming to normal daily, so that the chart resembles that of malaria. The rises gradually diminish until the temperature reaches normal; 50 per cent. of the cases are mild. There have been no deaths.

Indian Tick Typhus.—Megaw suggests the term "tick-typhus of India" or "tick-typhus" for the tick-borne fever now prevalent in India.

Carbon Tetrachlorid as Anthelmintic.—Chandler and Murkerji recommend the use of carbon tetrachlorid as an anthelmintic. In a dose of from 3 to 5 c.c. it is as safe as any effective anthelmintic, and distinctly safer than oil of chenopodium. In effectiveness, it is distinctly superior to chenopodium in eliminating necators, whereas it is approxi-

mately on a par or a little inferior in removing ancylostomes. It has a distinct ascaricidal action, especially when combined with chenopodium. Alone, it is a little less effective than either chenopodium or santonin. Given orally, it seems to have a more decided action on *Oxyuris* than any other anthelmintic.

Indian Medical Record, Calcutta

45: 33-64 (Feb.) 1925

Pharmacologic Action of Strophanthin on Man in Health and Disease. C. P. Ganguli.—p. 33.
Asthma. A. Roy.—p. 33.
Treatment of Epidemic Dropsy. K. C. Dutt.—p. 43.
Treatment of Asthma. S. K. Mukherjee.—p. 45.

Irish Journal of Medical Science, Dublin

1-48 (Jan.) 1925

Two Cases of Carcinoma of Rectum, Complicated by Pregnancy, and Treated by Excision. R. C. B. Maunsell.—p. 1.
Basal Metabolic Rate Determination and Interpretation. H. F. Moore.—p. 7.
Two Cases Illustrating Use of Murphy's Button. H. Stokes.—p. 35.
Old Age. J. E. Deale.—p. 37.

37: 49-96 (Feb.) 1925

Three Cases of Malignant Disease of Genital Organs with Direct Extensions into Intestinal Tract. G. Fitzgibbon.—p. 49.
Solid Tumors of Mesentery. C. MacAuley.—p. 54.
Case of Fröhlich's Syndrome. L. Abrahamson.—p. 58.
Case of Diabetes Insipidus with Symptoms of Hypopituitarism. L. Abrahamson.—p. 63.
Blood Cultures in Clinical Diagnosis. J. H. Pollock.—p. 65.

38: 97-144 (March) 1925

Personal Links Between Royal Colleges of Physicians of Ireland and London. H. Rolleston.—p. 97.
Gynecologic Pain. L. Cassidy.—p. 117.
Pleural Empyema. F. J. O'Donnell.—p. 125.

Journal of Oriental Medicine, Dairen, Manchuria

2: 263-306 (Nov.) 1924

Etiology of Measles and Scarlet Fever. R. Pollitzer.—p. 263.
Use of Refined Antidysentery Serum. T. Suzuki.—p. 279.
Congenital Dyskeratotic Verrucae. S. Hidaka.—p. 281.
Action of Calcium and Potassium on Intestine and Uterus. Y. Hayakawa.—p. 289.
Experimental Study of Viscosity of Blood. J. Kaneko.—p. 290.
*Ekiri (Foudroyant Form of Dysentery in Children) in Darien. K. Hatai.—p. 291.
Influence of Insulin on Intestine of Rabbits. H. Senga.—p. 292.
Effect of Drugs on Muscle Tonus. S. Inoki.—p. 293.
Structural Changes in Ovary Produced by Injection of Drugs. Y. Yamasaki.—p. 294.
Paget's Disease of External Female Genitalia. S. Hidaka.—p. 294.

Ekiri.—Hatai studied 100 cases of this disease. The disease is most prevalent between the ages of 2 and 3. The next prevalent period being between 3 and 4. In Dairen the disease is most prevalent during June, and again in August and September. The mortality of ekiri is 43 per cent. and the highest percentage occurs between the ages of 3 and 4. From the stools of patients suffering from ekiri, the author obtained dysentery bacilli in 14 per cent. of the cases. All these bacilli belonged to the variety type of dysentery bacilli. The first variety was represented to the extent of 60 per cent.; the second to 15 per cent. and the third variety to 35 per cent. From the classification of carbohydrate fermentations, the upsilon type was most prevalent; the next most prevalent was the Hiss type, and the next was the Flexner type. The author could not find any bacilli belonging to the pathogenic coli type.

Journal of State Medicine, London

33: 101-150 (March) 1925

*Phthisis and Industrialism (National and Occupational) with Reference to Other Infectious Diseases. E. L. Collis.—p. 101.

Phthisis and Industrialism.—This review by Collis may be thus summarized: Sweden presented a century ago a picture of phthisis endemic in a population of settled habits, living a hard life, with the strain heaviest for adult males. Later, the adoption of industrialism, without opportunity for increasing home produced food, while easing the strain on late life, increased it in earlier life, especially for females. In food-producing Australia the phthisis mortality has throughout been comparatively low, and the strain on life has been greater for males than females. Prussia, raising food at home in increasing amounts as industrialism developed, exhibits the two sexes reacting similarly throughout, in a way which, in 1877, resembled that of Sweden a century ago. Fifty years ago in America the strain of life was heavy for both sexes, while, especially in industrial Massachusetts, a malnutrition effect existed. Since then the strain has been lessened, particularly for females, and food consumption has become more adequate as economic well being has improved. So long as negroes, as slaves, shared the environment of the whites, their tuberculosis mortality resembled that of the whites; but for the less prosperous freed negro, improvement, especially with regard to food consumption, has not advanced so far as for the whites. Immigrant stock, while maintaining its original tendency to succumb to phthisis, is found reacting to its new environment in the same way as the stock born in that environment. In Czechoslovakia, in 1910, at a time when industrial and social development closely resembled those of England and Wales, in 1850, the curve of phthisis mortality closely resembled that of England and Wales, in 1850. The Netherlands, fairly advanced industrially, presented a reaction in 1913 not unlike that of Prussia at the time, but there is less sign of wear and tear for females. Denmark, with an export dairy industry, is found with a phthisis reaction intermediate between that of Australia and Sweden. Rapid industrial development in Japan is associated with a reaction to phthisis similar to that of modern Sweden. Female death rates from tuberculosis in adult life, and particularly in young adult life, have only been found in excess of the male where industrial conditions appear to place a demand on the energy output of females.

Journal of Tropical Medicine and Hygiene, London

28: 101-116 (March 2) 1925

Etiology of Hemoglobinuric Fever. W. E. Deeks.—p. 101.
*Use of Iodin in Beriberi. H. W. Ridley.—p. 102.
Influence of High Temperature on Preservation of Insulin. E. Trocello and A. Cruto.—p. 103.
Etiology of Blackwater Fever. W. M. Hewetson.—p. 105.

Iodin in Beriberi.—Ridley has used iodin with good results in the treatment of beriberi. The dose is five drops. In ordinary incipient cases, three doses, one a day, completely cured the attack, and even when the disease had so far advanced that the breathing and heart action were interfered with, the patient was much relieved in a very short time.

Lancet, London

1: 529-582 (March 14) 1925

*Twins in Health and Disease. G. R. Murray.—p. 529.
Epidemic Diseases of Central Nervous System. A. S. MacNalty.—p. 532.
*Surgical Treatment of Duodenal Ulcer. C. A. Pannett.—p. 538.
*Glycosuria. W. R. Campbell.—p. 541.
Case of Snake-Bite. H. O. Blanford.—p. 543.
*Traumatic Thrombosis of Superior Vena Cava. L. Van der Hoeven.—p. 544.
*Association of Cancer with Tuberculosis. C. P. White.—p. 544.

Twins in Health and Disease.—The evidence presented by Murray is said to show that similar twins not only closely resemble each other in appearance and character but also in the finer details of structure and metabolism. This similarity renders them liable to suffer from those diseases which are due to some inborn error, which sooner or later indicates its presence by definite symptoms of disease. Conversely, those diseases which are found to occur in both twins are most probably due to an inborn error, rather than to external circumstances. It is therefore, important to remember that when such a malady develops in one of similar twins, it is not unlikely to develop in the other. The healthy twin under these circumstances should be watched and any possible steps taken to prevent the onset of the same malady, or, at any rate, to treat it in its earliest stage.

Surgical Treatment of Duodenal Ulcer.—Pannett concludes his review by stating that there can be no reasonable doubt that in the evolution of the treatment of duodenal ulceration surgery is only a temporary expedient, but neither can it be denied that, in the present stage of knowledge, operative treatment is able to confer on the sufferer that relief which medicine is unable to bestow. Gastrojejunostomy effected a

cure in about 70 per cent. of the eight cases reported by Pannett. These results do not show the operation in as favorable a light as revealed by other statistics in England and America, based on a very large series of cases, but they agree with those reported from continental clinics. The direct method of attack, as in the analogous gastric lesion, is likely to prove more effective in treatment, if it can be carried out free from serious risk to the patient. In the cases of duodenectomy reported by Pannett the early results have been satisfactory, but the later clinical history of these patients remains for further study. This limited experience is considered favorable enough to justify a continued trial of duodenectomy in the treatment of duodenal ulcer.

Glycosuria.—Campbell emphasizes the necessity of carefully differentiating glucose from other reducing substances in the urine, and, when glucose is actually present, the importance of distinguishing between the accidents and anomalies of carbohydrate metabolism and diabetes mellitus.

Thrombosis of Vena Cava.—Van der Hoeven records the case a man who was thrown from his horse and lighted on his back on a hard road. He was rendered senseless for some minutes, and, on recovering, complained of severe pain in his back and chest, and of shortness and oppression in breathing. Next day, feeling his collar tight, he noticed that his neck was swollen, and by the following day his face, neck and arms were distended. The cyanotic swelling of the face persisted, the jugular veins and those of the arms being greatly dilated, but those of the thoracic wall were unaffected. There was no jugular pulse, and no edema of the neck or arm. Some dulness over the manubrium sterni was observed, and the cardiac impulse was feeble, but no other abnormality was evident. All this pointed to an obstruction of the venous return through the vena cava superior. The cyanosis slowly decreased, and collateral circulation through the superficial veins of the thorax and abdominal wall became established. Two months after the accident, the heart and thoracic aorta appeared normal, while two years later cardiac dilatation and hypertrophy developed.

Coincident Cancer and Tuberculosis.—In 180 consecutive necropsies on cancer patients, White found twenty-two cases in which there was coincident tuberculosis. In this number are included only those cases in which the tuberculosis was recent and active, evidences of old tuberculosis, such as calcified nodules or fibroid lungs, being disregarded. The diagnosis of tuberculosis was in all cases based on the presence of active giant cell systems with or without caseation. Tubercle bacilli were found in the majority of cases. With one or two exceptions, the tuberculosis was found either in the primary lesion or in a situation closely connected with the primary cancer, the regional lymphatic glands or, in the cases of cancer of the mouth, the lungs. The tuberculosis was obviously secondary to the cancer in most cases, but whether this was due to the entry of tubercle bacilli through the primary lesion or to the presence of cancer reducing the resistance of the body to bacilli already circulating in the system, could not be determined.

1: 583-640 (March 21) 1925

*Gastric Function in Health and Disease. J. A. Ryle.—p. 583.
Epidemic Diseases of Central Nervous System. III. Lethargic Encephalitis. A. S. MacNalty.—p. 594.
*Lime Dermatitis. W. J. O'Donovan.—p. 599.
*Etiology of Hemophilia. J. W. Pickering and R. J. Gladstone.—p. 602.
Hemorrhage During Dissection of Faucial Tonsils. N. Patterson.—p. 604.
*Duodenal Ulcer in Child of Two Months. J. A. L. Louden.—p. 605.
Cerebral Abscess Complicating Empyema. Case. A. F. Hurst.—p. 605.

Gastric Function in Health and Disease.—The present position of our knowledge relating to normal gastric sensibility, motility and secretion in man is reviewed by Ryle. Evidence is adduced to show that the motor or muscular functions of the stomach play a far more important part in controlling both sensibility and digestion than do the secretory functions. The clinical, roentgenographic and chemical criteria of healthy motor function are described briefly. The emptying rate for the individual with a standard test meal shows considerable constancy, and whether in the person or the community is a less variable quantity than acidity or tonus. The variations in tonus and peristaltic activity are as wide as the variations in appetite and hunger. Extraordinary variations in acidity also occur, from complete "achlorhydria" to extreme "hyperchlorhydria," and are generally expressions of the variations in tonus, peristalsis and motility. An appreciation of the existence of such variability in health is essential for the study of the gastric responses to disease. Evidence for a correlation between physical type or habitus, on the one hand, and motor and secretory type, on the other, is cited. A familiarity with the characters of the extreme physiologic types is essential for the study of certain pathologic types. In these characters may originate the liability to certain dyspeptic reactions, and possibly also the "diathesis" or liability to "retain" or to "develop" certain types of local disease. Recent views on the functions and control of the pylorus are discussed.

Lime Dermatitis.—Cases are cited by O'Donovan to show the influence of lime in the causation of local and of generalized grave dermatitis in various occupations. Lime dermatitis is now to be looked for in a wide field of industrial life. The patient's trade label is often a most insufficient guide to this special industrial hazard. A small group of cases is recorded among "tunnel-miners," not hitherto reported as liable to lime dermatitis. The types of dermatitis that may be seen are vesicular eruptions or cheiropompholyx, lime holes, seborrheic eczema, exfoliative dermatitis, intertrigo, erythrodermia, pustular follicular dermatitis and septal perforation. Oversweating or abnormal dryness of the skin are predisposing factors. Preventive measures consist in frequent changes of all dust-laden underclothing, alternation of employment to lime-free work, and the nightly application of emolient grease to the skin of the face, hands and forearms.

Etiology of Hemophilia.—Hemophilic bloods examined by Pickering and Gladstone coagulated in from six to eight minutes at 40 C. It is suggested that this property may possibly be utilized in controlling oozing from wounds and epistaxis. Hemophilic plasma exhibits most of the characteristics of early embryonic plasma. The protective power against clotting of both hemophilic and embryonic blood is not due to the presence of an antithrombin. It appears probable that the delay in the clotting of the hemophilic bloods examined is due to the persistence or reappearance in adult life of an embryonic condition of the plasma, and that in both hemophilic and embryonic blood there is present a relative excess of a stable protective colloid. This conclusion is concordant with the theory of the fluidity and clotting of blood.

Duodenal Ulcer in Child.—The symptoms in Louden's case were green mucous stools and incessant crying. At the necropsy two ulcers were found, one on the posterior wall of the first part of the duodenum and the other nearer the pylorus on the anterior wall of the duodenum.

Medical Journal of Australia, Sydney

1: 153-176 (Feb. 14) 1925

Arteriosclerosis. J. MacPherson.—p. 153.
Arteriosclerosis and Mental Disease. H. M. North and J. Bostock.—p. 156.
Hysterical Delirium. S. J. Minogue.—p. 162.
Case of Polycystic Disease of Kidneys and Liver. H. I. Holmes.—p. 164.
Retroperitoneal Hematoma in Hemorrhagic Disease of New-Born. P. L. Hipsley.—p. 166.

1: 177-200 (Feb. 21) 1925

*Value of Van Den Bergh Reaction in Jaundice. M. Cowen and S. O. Cowen.—p. 177.
Diet in Typhoid. V. J. Kinsella.—p. 182.
Dystocia. H. A. Ridler.—p. 184.
Heliotropine: Best Pediculicide. C. E. Corlette.—p. 185.
Achlorhydria, Hypochlorhydria and Asthma. L. A. I. Maxwell.—p. 186.
Tetanus Arising from an Infected Tooth: Case. G. Bell, A. W. Homes Court.—p. 187.
Malignant Pustule Treated Without Excision: Case. T. Hamilton.—p. 188.

Value of Van den Bergh Reaction in Jaundice.—The Cowens regard the Van den Bergh test as of value in detecting the presence of minor grades of jaundice in cases in which coloration of the skin and mucous membranes is absent or indefinite. By its use, hemolytic jaundice can be identified and the diagnosis between hemolytic and nonhemolytic anemia positively established; this they regard as the most valuable

property of Van den Bergh's test. It gives constant results in obstructive jaundice, but affords no indication as to the site or nature of the obstruction. In jaundice of other types its diagnostic value is as yet slight.

Practitioner, London

114: 181-248 (March) 1925

Chronic Urinary Infection with Bacillus Coli. J. Thomson-Walker.—p. 181.
Recent Work on Diseases of Heart and Blood Vessels. C. W. Chapman.—p. 200.
Pyretic Treatment of Rheumatic Affections. C. Sundell.—p. 208.
Psychotherapy: Practical Means of Healing. T. A. Hawkesworth.—p. 214.
*Acute Nephritis in Children. R. S. Allison.—p. 222.
Acute Intestinal Obstruction. R. St. L. Borckman.—p. 234.
*Chronic Osteomyelitis of Left Ulna: Unusual Position of Brodie's Abscess. L. Rogers.—p. 239.
Case of Acute Intestinal Obstruction. D. W. Macnamara.—p. 240.

Acute Nephritis in Children. — Twelve cases of acute nephritis in children, ranging in age from 4 to 11 years, were investigated by Allison in an attempt to discover the etiologic factors, to study the clinical course of the disease and to ascertain the after-results. Two-thirds of the cases, at the time of onset of the acute illness, showed markedly enlarged tonsils and adenoids which were in a state of chronic inflammation. From the results of their removal, Allison is convinced that these were the etiologic factors. Clinically half of the cases showed massive hematuria, severe constitutional disturbance and slight edema. "Smoky" and dark concentrated urine was associated with less severe constitutional symptoms. Oliguria was not a feature in any of the cases. The functional tests for renal efficiency were of no prognostic or diagnostic value. The blood urea was raised in one-third of the cases, the rise being temporary, and returning to normal with subsidence of the acute symptoms. The large majority of patients were free from symptoms, and had apparently recovered within a month from the onset. No case of uremia or a fatal termination were encountered. The children were reexamined at periods ranging from nine months to a year, and were found to be healthy and to show no trace of disease.

Brodie's Abscess in Ulna.—The tibia is the commonest seat of circumscribed abscess in bone. In the case cited by Rogers the abscess was in the ulna, at a site that had been traumatized about four months previously.

South African Medical Record, Cape Town

23: 41-64 (Feb. 14) 1925

Injuries of Eyes of Native Mine Workers. F. H. Napier.—p. 43.

Annales de l'Institut Pasteur, Paris

39: 101-195 (Feb.) 1925

*Lipoids in Treatment of Tuberculosis. L. Nègre and A. Boquet.—p. 101.
Hydrogen Ions in Diphtheria Cultures. G. Abt and G. Loiseau.—p. 114.
Research on Autolysis of Microbes. Lemoigne.—p. 144.
*Simple Benzoin Flocculation Test. R. Dujarric de la Rivière and L. Gallerand.—p. 174.
Microbes and Vitamins. P. Goy.—p. 183.

Methyl Antigen in Treatment of Experimental Tuberculosis.—Nègre and Boquet state that three or four intravenous injections of 5 c.c. of lipoids, extracted with methyl alcohol from tubercle bacilli, exerted a favorable effect in tuberculous rabbits and guinea-pigs, prolonging life by five or six months. The general condition remained good until late in the disease. Identical results were obtained with weak doses of the lipoids injected repeatedly during the whole course of the infection. The methyl antigen has been tried during the last two years in treatment of clinical pulmonary tuberculosis and in lupus. The general condition improved, the lupus lesion healed and the process in the lungs displayed a tendency to sclerosis.

Flocculation Tests in Diagnosis of Syphilis.—Dujarric de la Rivière and Gallerand say that with their method there was no flocculation reaction in the blood serum of fifty patients without clinical signs of syphilis, while the reaction was constantly positive in the eighty cases of untreated syphilis—the findings harmonizing with the Wassermann test in all. In eight patients, out of ten with positive flocculation before treatment, the reaction became negative after from twelve to thirty injections of bismuth, while the Wassermann test was still positive. With their method, a positive reaction occurred usually before a positive Wassermann test. The test is made by adding tincture of benzoin to the Bordet-Ruelens antigen. The benzoin renders the flocculation plainly visible.

Annales des Maladies Vénériennes, Paris

20: 81-160 (Feb.) 1925

*Abortive Treatment in Syphilis. J. Golay.—p. 81.
*Action of Bismuth on Wassermann Test. C. Simon.—p. 89.
Conjugal Erythrodermia from Arsenic. H. Gougerot.—p. 124.

The Wassermann Test in Abortive Treatment of Syphilis.—On the basis of his 107 cases, Golay denies that abortive treatment is inevitably successful in cases with negative Wassermann test, and vice versa. The treatment is the more effective, and recurrences rarer, the earlier it is begun, entirely independent of the Wassermann reaction. With a single series treated with neo-arsphenamin injected before the tenth day after the appearance of the chancre, recurrences appeared in 16 per cent. of the 25 cases; in 34 per cent. of the 50 treated from the tenth to the twentieth day; in 45.5 per cent. of the 22 from the twentieth to thirtieth day, and in 60 per cent. of the 10 treated from the thirtieth to the thirty-fifth day. The date of the appearance of the Wassermann reaction did not seem to affect the outcome, or only as it represented a longer interval since the primary infection.

Action of Bismuth on Wassermann Test.—Simon treated with bismuth nine cases of syphilis with Wassermann reaction resisting at least two neo-arsphenamin series. Some of the patients had been given six series and even more, sometimes combined with mercury. In four instances the Wassermann test became negative under the bismuth treatment. Still more favorable results are anticipated in cases of more recent infection.

Archives Franco-Belges de Chirurgie, Brussels

27: 849-944, 1924

Surgery of the Sympathetic. M. Laignel-Lavastine.—p. 849.
*Periarterial Sympathectomy. R. Leriche.—p. 859.
*Cervical Sympathectomy in Exophthalmic Goiter. A. Chalier.—p. 871.
*Sympathectomy in Leg Affections. G. Jeanneney and R. Mathey-Cornat.—p. 884.
*Sympathectomy in Angina Pectoris. Gernez.—p. 905.
*Phrenicotomy in Pulmonary Tuberculosis. C. Viscontini.—p. 910.
*Vagotomy in Gastric Hypertonia. S. Kostlivy.—p. 918.

Periarterial Sympathectomy.—Leriche says that the operative risk is negligible, but it is difficult to foresee the outcome. In causalgia the results are not always complete; in senile gangrene, poor, and in ascending neuritis and erythromelalgia, generally a failure. The field for periarterial sympathectomy is where the tissues are suffering from defective nutrition. By revolutionizing the circulation, better trophic conditions may be restored, even in a viscus or endocrine gland, or in the vascular region controlled by them.

Partial Resection of Cervical Sympathetic in Exophthalmic Goiter.—The end results of the Jaboulay operation (better in women than in men) in nineteen cases showed three patients cured, nine greatly improved, six slightly benefited, and recurrence in one instance. The effect on the exophthalmos and tremor is prompt; the other manifestations subside more slowly. Chalier considers cervical sympathectomy indicated in early cases with acute symptoms and in cases without enlargement of the thyroid. In chronic cases without fever he advises partial thyroidectomy, as also in those with large goiter and mild oculocardiac symptoms.

Periarterial Sympathectomy on the Leg.—Jeanneney and Mathey-Cornat find the results in gangrene incomplete or negative and the operation dangerous. In trophic ulcerations the results are more favorable, but still uncertain. In varicose ulcers, periarterial sympathectomy is one of the best indirect methods for a prompt cure, but it does not affect the cause and hence recurrence is liable.

Resection of Left Cervical Sympathetic in Angina Pectoris.—In Gernez' case in a woman, aged 47, the entire cervical sympathetic was resected. The dyspnea disappeared, the attacks became fewer and less severe, and gradually the

pain in the left arm and the precardiac symptoms ceased. The improvement still persists after ten months.

Phrenicotomy in Pulmonary Tuberculosis.—Viscontini considers phrenicotomy an imperfect substitute for artificial pneumothorax. He has applied it in eight cases, with great improvement in five. The procedure is recommended in unilateral pulmonary tuberculosis in the early stages if artificial pneumothorax does not happen to be feasible, also in cardiac disturbances due to pleurocardiac adhesions, pleural fistulas (with or without thoracoplasty), pulmonary gangrene and bronchiectasis, and in persistent hiccup, where it must be bilateral.

Subdiaphragmatic Vagotomy to Relieve Gastric Spasms.—Kostlivy advises against bilateral vagotomy as it may cause gastric atony with dilatation. Unilateral vagotomy gave good results in three cases of long recurring painful spasms of the stomach. All were completely cured by it, one for three years.

Archives des Maladies du Cœur, etc., Paris

18: 65-112 (Feb.) 1925

*Anomalies in P Wave of Electrocardiogram. R. Lutembacher.—p. 65.
Partial Heart Block in Dysentery. M. Petzetakis.—p. 70.
*Displacement of Left Auricle. S. Mentl.—p. 76.

Multiple Foci for Impulse in the Auricle.—In Lutembacher's case in a man with hemiplegia, aged 58, various forms of the P wave were manifest. Auricular extrasystoles sometimes supplanted the sinus rhythm. The P waves, being at times positive or negative, indicated that the impulse foci for the extrasystoles were in the upper as well as in the lower part of the auricles. A strong impulse induced a simultaneous functioning of the heterotopic centers in the auricles.

Signs of Displaced Left Auricle.—Mentl states that displacement to the right of the left auricle, owing to dilatation and rotation of the heart, may in most cases be established clinically, without the aid of roentgenograms. There is an area of dulness in the lower half of the space between the scapula and the spine on the right side. The heart sounds may be heard in the dorsal part of the thorax, the maximum intensity close to the spine, often in the right space between the scapula and vertebrae. The syndrome has been found chiefly in children and in adults with a flat thorax.

Archives de Médecine des Enfants, Paris

28: 137-200 (March) 1925

Etiology of Facial Paralysis in Children. P. Nobécourt.—p. 137.
Etiology of von Jaksch's Anemia. Beretervide and Bianchi.—p. 144.
The Adenoid Constitution in Children. E. Menai.—p. 167.
Multiple Malformations of Heart. Poltorzycka and Cieszynski.—p. 170.
Mesenteric-Intestinal Cysts. J. Comby.—p. 177.

Comptes Rendus de la Société de Biologie, Paris

92: 469-548 (Feb. 27) 1925. Partial Index

*Complement Fixation in Tuberculosis. Brocq-Rousseu et al.—p. 471.
Bacteriolytic Property of the Tyrothrix. L. Rosenthal.—p. 472.
*Immunity Against Dysentery. M. Melnik.—p. 474.
Glycolytic Property of Blood in Diabetes. H. Bierry et al.—p. 480.
*Intracerebral Injection of Tetanus Anatoxin. P. Descombey.—p. 482.
*Antistaphylococcus Bacteriophage in Surgical Infections. L. Bazy.—p. 485.
*Action of Roentgen Rays on Acid-Base Balance. P. Pagniez et al.—p. 489.
*Mineral Content of Blood in the Menopause. A. Blanchetière.—p. 491.
*Action of Cumulative Culture. C. Zoeller.—p. 497.
*Vaccine Treatment of Chancroid. J. Hababou-Sala.—p. 498.
*Heterologous Grafting of Cancer. J. Gheorghiu.—p. 505.
*Radiosensibility in Cells. P. Ancel and P. Vintemberger.—p. 517.
*Ammonia Content of Urine. A. Yovanovitch.—p. 520.
Uric Acid Content of Blood Plasma. Delaville and Jones.—p. 522.
*Action of Insulin and Liver Tissue on Carbohydrate Metabolism. C. Lundsgaard and S. A. Holboell.—p. 525.
Properties Acquired by Rabbits' Serum After Injection of Leprosy Products. A. Banciu.—p. 531.
*Action of Carbohydrates and Insulin on Milk. Banu and Heresco.—p. 531.
*Effect of Tobacco on Gastric Motility. D. Daniélopolu et al.—p. 535.
*Vagus Test in Heart Disease. Daniélopolu and Missirlin.—p. 538.
Bactericidal Action of Lochia. N. Dumitresco.—p. 542.

Complement Fixation Test in Experimental Tuberculosis.—Brocq-Rousseu, Urbain and Cauchemez relate that the test was positive in all their thirteen tuberculous dogs, the disease confirmed by necropsy findings. The reaction was negative in 96 per cent. of thirty healthy dogs.

Connection of Thyroid with Immunity Against Dysentery.—Inoculations with dysentery virus, made by Melnik in nine thyroidectomized and in five control rabbits, showed an increased resistance to dysentery infection in the animal after the thyroid had been removed.

Intracerebral Vaccination with Tetanus Anatoxin.—Descombey's experiments on guinea-pigs proved that immunity may be obtained with intracerebral injections of tetanus anatoxin as effectually as with subcutaneous injections of the anatoxin.

Antistaphylococcus Bacteriophage in Treatment of Surgical Infections.—Bazy ascribes the good results from this treatment to the presence of soluble products of microbic origin. No influence from the presence of the bacteriophage could be detected.

Alkalosis from Roentgen Rays.—Pagniez, Coste and Solomon applied a dose of 500 roentgen-ray units to the spleen. It induced alkalosis one hour after the irradiation in nine out of twelve subjects exposed. The same irradiations applied elsewhere caused alkalosis in eleven instances out of fifteen. Alkalosis had occurred with from 300 to 500 units of medium penetration, and with 300 of deep penetration. The p_H seemed to be exclusively involved in the alkalosis.

Mineral Content of Blood in the Menopause.—Blanchetière found in the normal and the artificially induced menopause an increase of calcium in the blood, diminution of potassium, as compared with sodium, and reduction of alkali metals, compared with alkaline earths.

The Action of the Diphtheria-Streptococcus Alterotoxin.—The alterotoxin produced by cultivating the streptococcus on diphtheria toxin induced the Dick reaction in a receptive subject. A dose of 0.2 c.c. of the alterotoxin injected intradermally in a subject with a positive anatoxin reaction and a negative Dick pseudoreaction (or vice versa in another subject), provoked a Schick (or Dick) pseudoreaction. Zoeller reports further that attenuation of the double toxicity of this alterotoxin was realized under the influence of formaldehyd and heating.

Vaccine Treatment of Chancroid.—Hababou-Sala describes his procedure for obtaining pure strains of Ducrey's bacillus which he used for a filtrate vaccine. The vaccine was applied locally to chancroids and buboes, or injected in the bubo, every day till complete recovery. He says the results are encouraging.

Phenomena with Heterologous Grafts.—Cancer and sarcoma tissues from mice implanted in the brain of thirty rats and fifteen guinea-pigs did not cause any tumors in the animals. The number of the cancer cells increased in the beginning and the cells did not change in a month. Then they were taken up by phagocytes.

Radiosensibility in Cells.—Ancel and Vintemberger point out that in appreciation of the action of the roentgen rays three separate points should be considered: the lesions induced, the manifestation of these lesions, and the tendency toward healing. Lesions detected with the microscope may result from associated action of these three, sometimes antagonistic, factors.

Method for Determination of Ammonia in Urine.—Yovanovitch gives an illustrated description of a simple and rapid method for estimation of ammonia in the urine with an absolute error of a hundredth of a milligram, and a relative error not surpassing 3 per cent.

Rôle of Liver in Carbohydrate Metabolism.—Lundsgaard and Holboell's research confirmed that the share of the liver in carbohydrate metabolism consists in storing glucose under the form of glycogen. The liver seems of no importance in the combustion of glucose in the organism.

Influence of Carbohydrates and Insulin on Human Milk.—Banu and Heresco summarize that a carbohydrate diet has no influence on lactation; the latter is not affected by insulin used in treatment of diabetic wetnurses. Diabetes is not a contraindication for nursing.

Action of Tobacco on Gastric Motility.—The roentgen rays showed a tendency to paralysis of the contracting power of

the stomach, starting ten or fifteen minutes after the first inhaling of the smoke, and persisting at least over an hour. The paralysis was often preceded by a phase of gastric hypercontractility. These phenomena occurred with large amounts of tobacco smoke. It is assumed that small doses may stimulate the contractility. The pathologic stomach responds differently from the sound stomach.

Value of Vagus Test in Heart Affections.—Daniélopolu and Missirlin reiterate that an exaggerated reaction to compression of the vagus in the neck—noted in heart disease—may testify to an increased sensitivity of the myocardium to the action of the parasympathetic nerves, while the tonus of the nerve itself may even be diminished. The vagus test is valuable in diagnosis of chronic lesions of the myocardium, in a clinically latent form. It is also significant in prognosis, since the test is notably exaggerated in advanced insufficiency of the cardiac muscle.

Rivista di Clinica Pediatrica, Florence

23: 73-144 (Feb.) 1925

*Schick Test in Passive Immunity. G. Frontali and M. Raspi.—p. 73.
*Bulboprotuberantial Type of Poliomyelitis. L. Magni.—p. 101.
*Case of Congenital Malaria. D. Caffarena.—p. 113.
Recurrence of Scarlet Fever. P. Iacchia.—p. 123.

Schick Test in Passive Immunity.—Frontali and Raspi made Schick tests on 413 healthy children from 1 month to 12 years of age in Florence. It was positive in 26.1 per cent.—the highest percentage occurring between 2 and 5 years (38.5 per cent.). It was positive in more than one half of the children with scarlet fever and measles. Serotherapy in diphtheria turned the Schick test negative for three weeks. It stayed negative also with serum sickness. Normal horse serum inhibits the reaction for the same length of time, when used in comparatively large amounts: 30 c.c. in children and 0.5-0.6 c.c. in guinea-pigs (the serum contained 0.1-0.2 antitoxic units). Antitoxin inhibits the reaction in much smaller doses: 2.5 units per kilogram in children, and 0.00012 c.c. (containing 0.05 units) in guinea-pigs. It seems that the effect of the normal horse serum is due to the antitoxin it contains.

Bulboprotuberantial Type of Poliomyelitis.—Magni reports on two cases of poliomyelitis localized in the medulla oblongata. Two photomicrographs showing the infiltration and neuronophagy are added.

Case of Congenital Malaria.—Caffarena observed anemia and fever in the three days old son of a woman suffering from malaria at Genoa, which is free from autochthonous malaria. Blood smears made on the fortieth day revealed the malaria parasites in the infant.

23: 145-216 (March) 1925

*Limitation of Movements and Rickets. A. Borrino.—p. 145.
Hepatosplenomegaly in a Nursling. A. F. Canelli.—p. 162.
Genitosuprarenal Syndrome. D. Moggi.—p. 187.

Limitation of Movements and Rickets.—Borrino produced rickets in infants fed with cow's milk by keeping them in bed without exercise. Controls whom she forced to make movements remained healthy. Massage, and passive and active movements, cure rickets in children above one year without any dietetic treatment.

Deutsches Archiv für klinische Medizin, Leipzig

146: 257-384 (March) 1925

*The Blood in Sepsis. H. Lenhartz.—p. 257.
*Diuresis and Diuretics. IV. B. Stuber and A. Nathansohn.—p. 283.
Dextrocardia with Isthmus Stenosis and Infectious Endocarditis. K. Bahn.—p. 297.
*Origin of Urobilin. F. Fischler and F. Ottensooser.—p. 305.
Protein Metabolism in Diseases. S. Lauter and M. Jenke.—p. 323.
Observation on Leukocytes in Warm Chamber. E. v. Philipsborn.—p. 346.
Diabetes Mellitus and Insipidus Following Pregnancy. S. Lauter and F. Hiller.—p. 355.
*Diameter of Erythrocytes. E. Wiechmann and A. Schürmeyer.—p. 362.

The Blood in Sepsis.—Lenhartz regards a rapid decrease of the hemoglobin and number of erythrocytes, together with high leukocyte counts, as characteristic of gas bacillus infection. Other septic infections without suppuration have no distinct features. Even normal leukocyte counts may occur, which are prognostically bad only with a marked shifting to the left and aneosinophilia. Eosinophils are, however, frequently present in septic endocarditis.

Diuresis and Diuretics.—Stuber and Nathansohn find that a surplus of acid or alkali does not impair the elimination of water in the period of regression of edema in acute glomerulonephritis. A low hydrogen ion concentration of the urine reduces the albuminuria and hematuria. Intravenous injection of euphyllin enhances the elimination of acid. Continuous administration of thyroid preparation seems to increase the elimination of acid and decrease the elimination of alkali. The condition is the reverse of this with alkaline food, if thyroid treatment is given at intervals.

Origin of Urobilin.—Fischler and Ottensooser admit the almost exclusive origin of urobilin in the intestine. Yet they find that some may be formed outside of it. In this case a grave disturbance of the liver is always present. Glycoprival intoxication, produced by fasting and phlorhizin, causes anatomic lesions of the liver and urobilinuria, which is especially pronounced after the animal has been saved by injection of glucose. This occurs even in animals with ligated bile ducts, where an intestinal origin of urobilin is out of the question.

Diameter of Erythrocytes.—Wiechmann and Schürmeyer found that the diameter of erythrocytes is smaller (by 0.3-0.4 micron) in the arterial blood than in the venous or the first drop of capillary blood. An incision into the finger yields corpuscles corresponding to those from arteries. The changes are caused by the carbon dioxid content of the blood. The diameter is increased in acidosis of diabetes, and decreases after insulin is given. Ten minutes of forced respiration decrease it by 0.5 micron. The original size is not reached in eight minutes. Morphin increases, sodium bicarbonate decreases their size. The diameter is especially large in the new-born.

Münchener medizinische Wochenschrift, Munich

72: 331-372 (Feb. 27) 1925

Brain Tumors. A. Bostroem.—p. 331.
*Electric Vagus Stimulation in Man. Stahnke and Seyerlein.—p. 334.
*Syphilis of the Trachea. E. Fraenkel.—p. 335.
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*Hypertension and the Carotid Pressure Reflex. Hering.—p. 339.
*Symptomatology of Epileptic Seizure. G. Stiefler.—p. 342.
*Venesection and Postoperative Complications. B. Aschner.—p. 344.
Sodium Thiosulphate Treatment of Arsphenamin Dermatitis. S. Fuss and F. Dahlmann.—p. 345.
*Anonymous Physician's Views on Morphin and Cocain.—p. 346.
*Radioactive China Pessaries. H. Fischer.—p. 347.
Successful Suture of Stabbed Heart. F. Otto.—p. 348.
"Criticism of Plethysmography." P. Uhlenbruck.—p. 349.
Heart Sounds in Infectious Diseases. H. Müller.—p. 350.
Elastic Flatfoot Insoles. E. Fischer.—p. 351.
*Hemostasis. A. Krecke.—p. 352.
Organization of University Assistants. M. A. Busch.—p. 354.

Electric Vagus Stimulation in Man.—Stahnke and Seyerlein stimulated the vagus in man by an electrode introduced into the lower part of the esophagus. They induced with this increased tonus and peristalsis of the stomach without subjective disturbances. The duodenal bulbus is functionally a part of the stomach. The vagus controls it, and opens or closes the pylorus according to the intensity of the stimulus.

Syphilis of the Trachea.—Fraenkel reproduces photographs of syphilis of the trachea. The disease is clinically very difficult to diagnose. Paralysis of the recurrent nerve and esophageal fistula are not uncommon complications. The scar tissue which develops and contracts may cause dangerous sequelae.

Movements of Muscularis Mucosae of Stomach.—Thorell shows that the muscular layer of the mucous membrane of the frog's stomach may survive from forty-five minutes to twenty or thirty hours. It responds (together with its nerve elements) in a characteristic way to physostigmin), epinephrin and nicotin.

Hypertension and the Carotid Pressure Reflex.—Hering estimates the neurogenic part of the hypertension by the degree of lowering of the blood pressure after compression of the carotid. Even in grave hypertension, at least a part of it is usually of this origin. When he produced high blood

pressure in rabbits by continuous infusion of epinephrin, the compression reflex was negative.

Symptomatology of Epileptic Seizure.—Stiefler deals chiefly with the diagnostic significance of C. Mayer's finger-thumb reflex. Strong passive flexion of the basal phalanx of a finger (with the hand supinated) causes in 96.5 per cent. of healthy subjects an opposition movement of the metacarpus of the thumb, with flexion of its basal and extension of the second phalanx. The reflex center is in the nuclei supplying the small muscles of the thumb. This sign is practically always absent during epileptic seizures, including petit mal of longer duration, and is invaluable in epileptic twilight states. He confirms the possibility of provoking an attack by tachypnea.

Venesection and Postoperative Complications.—To prevent complications after abdominal operations (embolism, thrombosis, ileus, peritonitis), Aschner applies venesection, removing 250 c.c. of blood. This is especially indicated in stout plethoric patients. He finds that anemia is diagnosed too often and plethora too rarely. Venesection has beneficial effects in all inflammations—including pleurisy, appendicitis, endocarditis and oophoritis. He believes that it is going to be used in the next few years at least ten times more frequently than now.

Morphin and Cocain Addiction.—An anonymous physician, formerly for three years a morphin-cocain addict, describes his experience. His parents were neuropathic. He tried the first injection from curiosity, and became an addict half a year later, although he was in no distress. The addicts usually add cocain when the stimulating action of morphin vanishes. It also counteracts the constipation, while the morphin inhibits the cocain mydriasis, hallucinations and palpitations. He is of a cycloid predisposition, but the addiction changed him toward schizophrenia. Together with the indifference to hunger and cold, the capacity for emotions is entirely lost. The moral insanity is complete, and—a characteristic feature of the emotional idiocy—the addict gets sentimental. This should never be taken seriously: the posing is without inner resonance. The only way to cure, in his opinion, is to discontinue the drugs at once. It makes the patient bedridden, which is an advantage. The terrible restlessness disappears in a few days; insomnia lasts for months. Hypnotics are rational, but the patient must not be the one to determine when and how much of them to take. Alcohol and coffee are useful in later stages, with the same provision against excessive use. The greatest difficulty begins when the patient can get up but has not yet regained the energy to work. The remembrance of his former efficiency under the drugs easily causes a relapse. The six weeks often given as the date for recovery, were in his own favorable case just the time when he most felt the lack of energy. The patient must not be left alone for a minute for at least six months, although theater, concerts, etc., are advisable. A relapse is easily possible within a year. The patient is cured only when full ability and zest in his work have returned.

Radioactive China Pessaries.—Fischer has designed some china pessaries containing minimum doses (0.0004-0.0012 mg.) of radium. He uses them in benign metrorrhagia.

Hemostasis.—Krecke emphasizes that every venous bleeding—including the jugular vein—can be controlled by compression. Every hemorrhage from an artery up to the size of the radial artery, stops after elevation of the extremity and compression. Injection of blood has a wonderful effect in hemophilia. Preparations from blood platelets should be given in gastric hemorrhage intravenously, intramuscularly and by the mouth.

72: 373-412 (March 6) 1925

*Serum Calcium in Neuroses and Fever. F. Glaser.—p. 373.
*Bacillus Cytolyticus. H. Much.—p. 374.
*Bismuth-Fast Spirochetes. G. Giemsa.—p. 377.
Bacteriology of Secretions. L. Bitter and M. Gundel.—p. 379.
*Eosinophilia in Exploratory Excisions. E. O. Schoch.—p. 380.
*Hypnosis and the Vegetative System. H. Marcus and E. Sahlgren.—p. 381.
Mimic Rigidity. S. Ostheimer.—p. 382.
Calcium Chlorid in Dermatology. L. Sirota.—p. 383.
Arthritis Deformans. P. Ewald.—p. 384.
*Percutaneous Poisoning with Resorcin. M. Haenelt.—p. 386.
*Test of Virulence of Germs. W. Framm.—p. 388.
Alleged Poisoning with Stannous Hydrid. G. Joachimoglu and F. Paneth.—p. 390.
Ponndorf's Vaccination. M. J. Gutmann.—p. 390.
Einthoven and the Progress Owed to Him. E. Schott.—p. 391.
Obesity. F. Umber.—p. 393.
Organization of University Assistants. M. A. Busch.—p. 395.

Serum Calcium in Neuroses and Fever.—While the calcium concentration is individually constant in the serum of healthy subjects, Glaser found marked variations in hypnosis (higher in excitement, lower in suggested calm), vegetative neuroses, and fever. Anatomy cannot testify in functional neuroses, but chemistry can. Everything points to a central regulation of the metabolism of both organic (sugar, fat, proteins) and inorganic substances. Lesions of the base of the brain and the floor of the fourth ventricle produce changes in the inorganic ions of the blood.

Bacillus Cytolyticus.—Much discovered that certain strains of the mycoides group dissolve other germs and cells. This is a true lysis, resembling in this respect bacteriophages, and different from specific bacteriolysins which kill, and hemolysins, which leave the stroma intact. The antigenic properties of the dissolved substance are preserved. The principle differs from bacteriophages in acting only on other organisms, not on the cytolytic bacillus itself. It is not transmissible, and the action depends on its quantity. It is not specific, and dissolves under certain conditions even lipoids. There were no therapeutic results with it in dysentery in his institute. He attributes the favorable outcome in Tinnemeyer's experiments to the addition of enemas containing this principle, which he calls "sentocym." The results in tuberculosis are encouraging, but still far from being sure. Colon bacillus infections gave the best results.

Bismuth-Fast Spirochetes.—Giemsa attempted to obtain a bismuth-fast strain of *Spirochaeta pallida* by treating infected rabbits with subtherapeutic doses. He failed in three passages, lasting up to 148 days.

Eosinophilia in Exploratory Excisions.—Schoch found in about 10 per cent. of cancers of the uterine cervix a marked local eosinophilia; 45 per cent. of the forty women with this change were cured by roentgen rays, while the general rate of the cured was only 13.2 per cent.

Hypnosis and the Vegetative System.—Marcus and Sahlgren found no influence on the sugar curve by the hypnotic suggestion of drinking a sugar solution when water was given, and vice versa. The same was true as regarded the epinephrin reaction. Only the pallor and accelerated pulse were produced by water in persons who had been injected with epinephrin previously. It seemed, however, that insulin lowered the blood sugar less if the suggestion of injection of mere water was given.

Percutaneous Poisoning with Resorcin.—Haenelt reports fatal poisoning of a 3 weeks old boy, caused by application of a 5 per cent. resorcin ointment on a patch of eczema.

Test of Virulence of Germs.—Framm compared the results of Philipp's virulence test and postoperative complications in gynecologic and obstetric patients. Out of 100 tests, all the twenty-four strains of hemolytic streptococci and one of pneumococci grew in the patient's blood. With other germs, the test was negative in seventy-two cases and questionable in three. He concludes that the results of Philipp's test depend simply on the species of germs. The clinical outcome does not parallel the test findings. The test is of no more use in prognosis than the determination of the germs.

Seuchenbekämpfung, Vienna

2: 1-93, 1925. Partial Index

*Immunity to Experimental Cancers. Georg Joannovic.—p. 1.
*Serodiagnosis of Cancer. N. Waterman.—p. 6.
Recent Research on Meningococcus Infection. O. Thomsen.—p. 10.
*Vaccination Against Diphtheria. R. Kraus.—p. 31.
*Epidemiology of Plague. P. Manteufel.—p. 33.

Immunity to Experimental Cancer.—Joannovic states that the evidence to date testifies that the immunity to experimental cancers induced by treatment with autolysates of

cancers surpasses that obtained with autolysates of embryonal tissue (Fichera). He and Lamprecht have succeeded in curing certain superficial skin cancers with ferment cleavage products of carcinoma tissue, and they believe that internal cancers may be affected by this treatment, although to a lesser extent than the less malignant skin neoplasms.

Serodiagnosis of Cancer.—Waterman admits that none of the serologic tests for cancer to date has proved dependable, yet each represents an instructive biologic reaction which has thrown light on the nature of malignant processes.

Vaccination Against Diphtheria.—Kraus discusses the causes for the recent deaths of six infants in a Vienna institution immediately after a preventive diphtheria toxin-antitoxin injection. He thinks we must accept the possibility that addition of a little acid or alkali to the otherwise balanced and harmless mixture may destroy the antitoxin, and thus leave the latent toxin free to exert its full potency after the dissociation.

Prophylaxis of Plague.—Manteufel insists that hitherto too much stress has been laid on human beings, and on protection of harbors against imported infection. He asserts that the whole system of prophylaxis could be simplified and rendered much more effectual by concentrating the preventive measures on the plague focus. By intensive measures there, the ships loading at this port would be protected against infection getting on board.

Wiener klinische Wochenschrift, Vienna

38: 267-294 (March 5) 1925

Diphtheria and Gonorrhea of the Conjunctiva. K. Lindner.—p. 267.
*Chronic Infectious Anemia. A. Edelmann.—p. 268.
Syphilis of Lungs. H. Homma and F. Hogenauer.—p. 269.
*The Trendelenburg Phenomenon in Hip Disease. A. Saxl.—p. 273.
*Action of Nucleinates. P. Habetin.—p. 275.
Direct Blood Transfusion. W. Schiller.—p. 277.
Contagiousness of Encephalitis. A. Schönfeld.—p. 278.
Insulin Research in Allen's Institute. R. E. Mark.—p. 278.
"Auscultation of Joints." R. Grünbaum.—p. 280.
Therapeutic Use of Hypnosis. A. Pilez.—p. 280.
Eye Disturbances in Children from Real and Seeming Anomalies of Refraction. V. Hanke. Supplement.—pp. 1-8.

Chronic Infectious Anemia.—Edelmann describes two cases of chronic anemia in young adults. The hemoglobin index was quite low, and a marked eosinophilia was present. He found in the erythrocytes corpuscles resembling piroplasmas.

The Trendelenburg Phenomenon in Hip Disease.—Saxl considers the Trendelenburg sign more broadly, the basic function being to keep the horizontal position of the pelvis in walking. The muscles—especially the gluteus medius and minimus—take an active part. The superior iliofemoral and the ischiofemoral ligaments act passively. An ankylosis of the hip joint contributes also passively to the position. Various palliative osteotomies have the same effect.

Action of Nucleinate.—Habetin saw marked improvement in three cases of multiple sclerosis after intramuscular injections of 5 c.c. of a 5 per cent. solution of sodium nucleinate.

Zeitschrift für Tuberkulose, Leipzig

41: 369-432 (Feb.) 1925

General Constitution and Tuberculosis in Children. S. Engel.—p. 369.
Effect of Tuberculous Infection on Child's Body. G. Balster.—p. 372.
Healing of Pulmonary Tuberculosis and Hepatization. R. Hubert.—p. 379.
*The Blood Pressure in Relation to Hemoptysis. J. Olivet.—p. 384.
Enrichment Procedures for Tubercle Bacilli. Kersting and Strauss.—p. 389.

Relations Between Pulmonary Hemorrhages and the Blood Pressure.—Olivet does not regard an increase in the blood pressure as the only or the chief cause of pulmonary hemorrhage. Quite the contrary, on the basis of his investigations on eleven patients, with hemoptysis, during the time of bleeding, and on his 100 patients in all stages of pulmonary tuberculosis, he considers that low blood pressure, due to toxic injury of the organism, favors pulmonary hemorrhage, and practically always accompanies it. Since increased blood pressure is not a factor in the hemorrhage, stimulants may be given freely.

Zentralblatt für Gynäkologie, Leipzig

49: 561-624 (March 14) 1925

Interruption of Pregnancy and Criminal Law. K. Holzapfel.—p. 561.
Chorio-Epithelioma of Ovary. G. Voigt.—p. 573.
Uterine Mucosa in Fallopian Tube. B. Schindler.—p. 582.
Sedimentation Test in Obstetrics. H. O. Neumann.—p. 585.
*Collapse from Thirst in Infant. R. Steinke.—p. 600.
Aneurysm of Right Hypogastric Artery. H. C. Brunner.—p. 603.
Spontaneous Rupture of Uterus in Transverse Presentation. H. Hellendall.—p. 606.
Cervicovaginal Fistula from Abortion. F. A. Vonnegut.—p. 608.
Graphic Record of Blood Curves. E. N. Milutina.—p. 614.

Collapse from Thirst in Infant.—Steinke reports the case of a normal, full term infant, at first perfectly well and nursing well. On the fourth day it seemed less thirsty and showed signs of rhinitis, interfering with the nursing. Mild transient cyanosis then appeared, followed by fever (38.1 C.) and an acute collapse. On the administration of 100 gm. of tea, the grave attacks soon ceased, without recurrence, and in two hours the temperature was normal.

Zentralblatt für innere Medizin, Leipzig

46: 185-216 (Feb. 28) 1925

Peristalsis of Capillaries. M. Klingmüller.—p. 186.

Casopis lékaru ceskych, Prague

64: 321-360 (Feb. 28) 1925

*Sympathectomy in Reflex Contractures. V. Brezovnik.—p. 321.
*Inflammation of Endolymphatic Sac. F. Ninger.—p. 323.
Dosage in Deep Roentgen Therapy. V. Mandler.—p. 327.
*Cause of Anomalies of Refraction. O. Leser.—p. 332. Conc'n.
*Chronic Osteomyelitis. Kreisinger and Mlcochová.—p. 335. Conc'n.
Traumatic Neuroses. E. Knobloch.—p. 342. Conc'n.

Sympathectomy in Reflex Contractures. — Brezovnik's patient had reflex contractures of the muscles of the left upper extremity following a fracture of the neck of the scapula. He recovered after periarterial sympathectomy made on the subclavian artery.

Inflammation of Endolymphatic Sac.—Ninger emphasizes the cerebellar symptoms in his two cases of inflammation of the endolymphatic sac.

Cause of Anomalies of Refraction.—Leser's embryologic and clinical investigations show that the dimensions of the eye change up to the age of 30. The refraction changes according to the direction of growth. Work has no influence on the refraction. He found proportionally less near-sightedness in 15 year old boys than in the 12 year old. The growth of the eye is responsible for this.

Surgery and Vaccination in Chronic Osteomyelitis.—Kreisinger and Mlcochová combined surgery and Besredka's vaccination in twenty patients with chronic osteomyelitis; fourteen patients recovered.

64: 361-400 (March 7) 1925

Progress of Surgery. Kukula.—p. 361.
*The Disease of the Composer Smetana. A. Heveroch.—p. 370.
Medical Findings in Ski Races. J. Horak et al.—p. 378. Cont'd.
Vaccine Treatment of Urologic Affection. J. Rejsek.—p. 380. Cont'd.
*Insulin Spasms. F. Karásek.—p. 383.
*Bismuth Treatment of Syphilis. A. Trýb.—p. 385.

The Disease of the Composer Smetana.—Heveroch discusses details of Smetana's affection. The patient's critical attitude toward his sickness and the fact that he was able to continue his creative work for a long time testify in favor of arteriosclerosis of the brain against paralysis or senile dementia. The deafness with which the grave stage of the disease started was evidently due to endarteritis or arteriosclerotic hemorrhages in the internal ear.

Insulin Spasms.—Karásek found no influence of insulin on the direct irritability of muscles in frogs. He believes that the spasms are of reflex origin.

Bismuth Treatment of Syphilis.—Trýb considers a combination treatment advisable, with the rapidly acting arsphenamin and the more prolonged action of bismuth.

Finska Läkaresällskapets Handlingar, Helsingfors

67: 135-214 (Feb.) 1925

Leprosy in Finland. A. Cedercreutz.—p. 143.
Relation of Sensory Impressions to Intellectual Work and Physical Therapy. D. Rancken.—p. 154.
Bacteriophages. C. Nyberg.—p. 181.